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See pages 19, 20, 22, 97 for notices of catalogs and publications on municipal and civic subjects

For Index to Advertisements see page 118

From

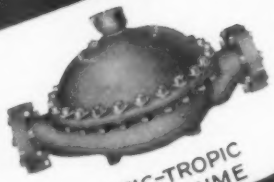
BORDER to BORDER

and **COAST to COAST**

PITTSBURGH WATER METERS

TROPIC DOMESTIC

EUREKA CURRENT



ARCTIC-TROPIC LARGE VOLUME

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WPA Funds Still Available

Guide to Eligibility of WPA Projects

NOTWITHSTANDING the "deadlines" previously announced from Washington, WPA funds in substantial amounts are still available for definite allotment, and prompt submission of new applications may result in approval of projects which meet the tests enumerated below. The numbered paragraphs are from a "Guide to Eligibility of WPA Projects," issued October 28 by Administrator Harry L. Hopkins to State Works Progress Administrators.

Especially designated as eligible are "all properly sponsored projects for the construction, reconstruction, repair, improvement or development of public buildings or public works and improvements to public property, as for example:

Parks and athletic fields
School buildings
Sanitary or storm-sewer systems
Street repairs and similar projects."

Among the specific types of projects indicated as eligible for new applications are:

Eligible

1. *Commodity distribution projects* (state-wide basis sponsored by SERA or State Boards of Public Welfare) giving state headquarters, with breakdown by names of counties with amounts of Federal funds for each county.

2. *Roads—Federal Aid highways.*—Landscaping and drainage work on Federal Aid roads has been approved. In this connection, projects submitted for work on a specific road must be so described as to location as to exclude the possibility of duplication. Sidewalks located on Federal Aid highways are eligible when part of a cost of that highway is paid by or is assessed against the adjoining property owners.

3. *City-wide tree cutting, trimming or pruning* projects even on private property, providing project specifies that the work to be done is for the benefit of the general public.

4. *Timber cutting* on private property if the timber is donated and if for use on various WPA projects or for furnishing fuel to the needy. Application must include the statement, "Cutting Donated Timber."

5. *Road projects* may be approved on a county-wide basis with the following description: "For repairing and improving various roads *not in the Federal Aid Highway System.*" The same description may be used for a series of counties, provided a schedule is attached giving the names of the counties and the amount of Federal funds to be spent in each county. This is permissible but not desirable, and a separate WPA Form 306 for each county is preferred. All road projects when the road is not a part of the Federal Aid highway system must include in the description the specific statement, "Not a Federal Aid highway." The legality of sponsorship of county-wide road projects must be determined by the State Highway Department, as in some states the State Highway Department cannot sponsor county roads.

6. "Renovating and improving existing *sewer systems* in addition to projects specifically approved." Such work should be done on a city-wide basis, or county-wide as the case may be, using the above quoted description. If the county contains a city or cities of over 15,000, separate projects are necessary for the work in each such city and for the work in the rest of the county. This also applies to drainage ditches. A project may be approved for a *city- or town-wide sewer program* without specifically naming the streets or wards if the population of the town is less than 15,000. If the city is larger than 15,000, the wards should be listed with the amounts of Federal funds required for each ward, or by types of work without naming streets or wards (preferable). If there are no political or geographic subdivisions such should be noted.

7. A city-wide or town-wide project may be approved for the construction of, or repair and improvement of, various *roads and streets* in cities of less than 15,000 population without specifically naming the streets or wards. In cities or towns of over 15,000 population, a city-wide project may be approved, for street construction or repairs by wards *or* specific street *or* by types of work without naming the streets or wards (preferable) but with the phrase added, "Exclusive of any other projects specifically approved." Thus, a city-wide street repair program involving concrete, brick, and asphalt repairs should be submitted as three separate projects—one for each type of work, with the added phrase quoted above.

8. Projects for state- or county-wide operation, supervised and paid from one central point, such as *recreational supervision projects*, may be approved as one project.

9. *Gravel pits.*—The description on such projects should always read, "To operate community (or county) gravel pits, to produce gravel for use on WPA projects." These pits may be either owned or leased by the sponsor, and such information must be indicated in the description on the application Form 306.

1. *Free school lunch projects* where it is indicated they are for needy or undernourished children or for children from families on relief, and a specific statement included, "No charge to be made for the lunches."

11. *Geodetic surveys* sponsored by qualified state agencies on a state-wide basis, giving state headquarters.

12. *Statistical projects* which are approved by the Coordinating Committee. Professional, clerical and educational projects which are extensions of the identical type of work provided for in a normal state or municipal budget may not be approved. However, when the work contemplated is not work normally done by the appropriate state agency or the work is of a type which has never formerly been done by that agency, projects of this type may be approved in the following two categories:

a. Professional, clerical and education projects for the benefit of public bodies or institutions.

b. Projects providing supervisory personnel in self-help cooperatives in lieu of relief.

As an example of the precise meaning of the above eligibility—a project to provide additional personnel for a County Clerk would not be acceptable, but a project to cross-index county records, which have not been previously cross-indexed, would be acceptable.

As another example a project to increase personnel in a library would not be eligible, but a project for library extension work where there were previously no library extensions would be eligible.

13. *Sewing rooms* when products are distributed to needy persons and charitable institution. (See "Guide" for information.)

14. *Community sanitation, malaria control and mine sealing projects* sponsored by the State Boards of Health with the approval of and to be prosecuted under the technical supervision of the United States Public Health Service. The following descriptions should be used for community sanitation projects: "Community sanitation—the elimination of insanitary devices by the construction of sanitary privies in rural areas and suburban territories where sewer systems are impracticable." For malaria control projects the description should read: "Malarial control—drainage of swamps and ponds to eliminate mosquitoes." For "mine sealing" projects, the description should read: "Sealing of abandoned mines to protect the public health." Such projects if state-wide must be broken down into counties with amount of Federal funds for each county. All of these projects may be approved even when on private property.

15. State-wide *transient camp* projects on which the following description should be used: "Transient work camps in lieu of relief." No breakdown by counties is necessary. Ownership of property must be shown as either Federal or non-Federal property.

16. Nation-wide projects sponsored by the WPA in Washington for *music, art, drama, and writing.* Projects of the National Youth Administration and educational projects are also eligible when sponsored by WPA in Washington, and locally sponsored projects of these types will not be approved. While projects which belong in this class are not eligible for submission by the state WPA Administrator to the WPA in Washington, information within these categories should be directly addressed as follows:

N. Y. A. and Education Projects—Aubrey Williams, Assistant Administrator, Works Progress Administration, Walker-Johnson Building, Washington, Washington, D. C.

National Professional Projects—Jacob Baker, Assistant Administrator, Works Progress Administration, Walker-Johnson Building, Washington, D. C.

Relief Research, WPA Research and National Statistical Projects—Corrington Gill, Assistant Administrator, Works Progress Administration, Walker-Johnson Building, Washington, D. C.

17. Projects for the *painting of aids to air navigation* on property, regardless of ownership.

18. Projects for the *demolition of donated buildings or structures*, even though the property is privately owned, provided the owner of the property agrees to leave the property vacant for not less than one year if legally possible locally.

19. Projects otherwise eligible for which the sponsoring agencies have *option for the necessary land* and agree to take up the option upon the approval of the project. The following statement shall be specifically included with projects of this kind: "No expenditures of Federal funds for this project will be made until this land is actually purchased, and no Federal funds for this project will be used for the purchase of this land."

20. *Book binding and book repair* when not a part of the normal budget of the public institutions concerned. These projects should include the specific statement "Not a part of normal work in this institution."

21. *Public health nursing* for the needy as distinguished from housekeeper projects, which are not eligible.

22. Certain Reclamation Projects as covered in WPA Bulletin No. 32.

Ineligible

The above-mentioned Guide, in addition to the eligible projects, lists 17 types as ineligible. For a copy of the Guide application should be made to your State Works Progress Administrator or to the WPA in Washington.

WATER for the WORLD!

In the doing of the world's work, Layne plays a vital role. Through Layne Pumps . . . out of Layne Wells, billions of gallons of clean, pure water pour into thirsty cities the wide world over, safeguarding health, protecting homes. Water from Layne Systems help industry in a dozen nations manufacture almost everything from safety pins to ocean liners. And always . . . everywhere, those who rely on Layne know that Layne truly means "more water . . . less cost."

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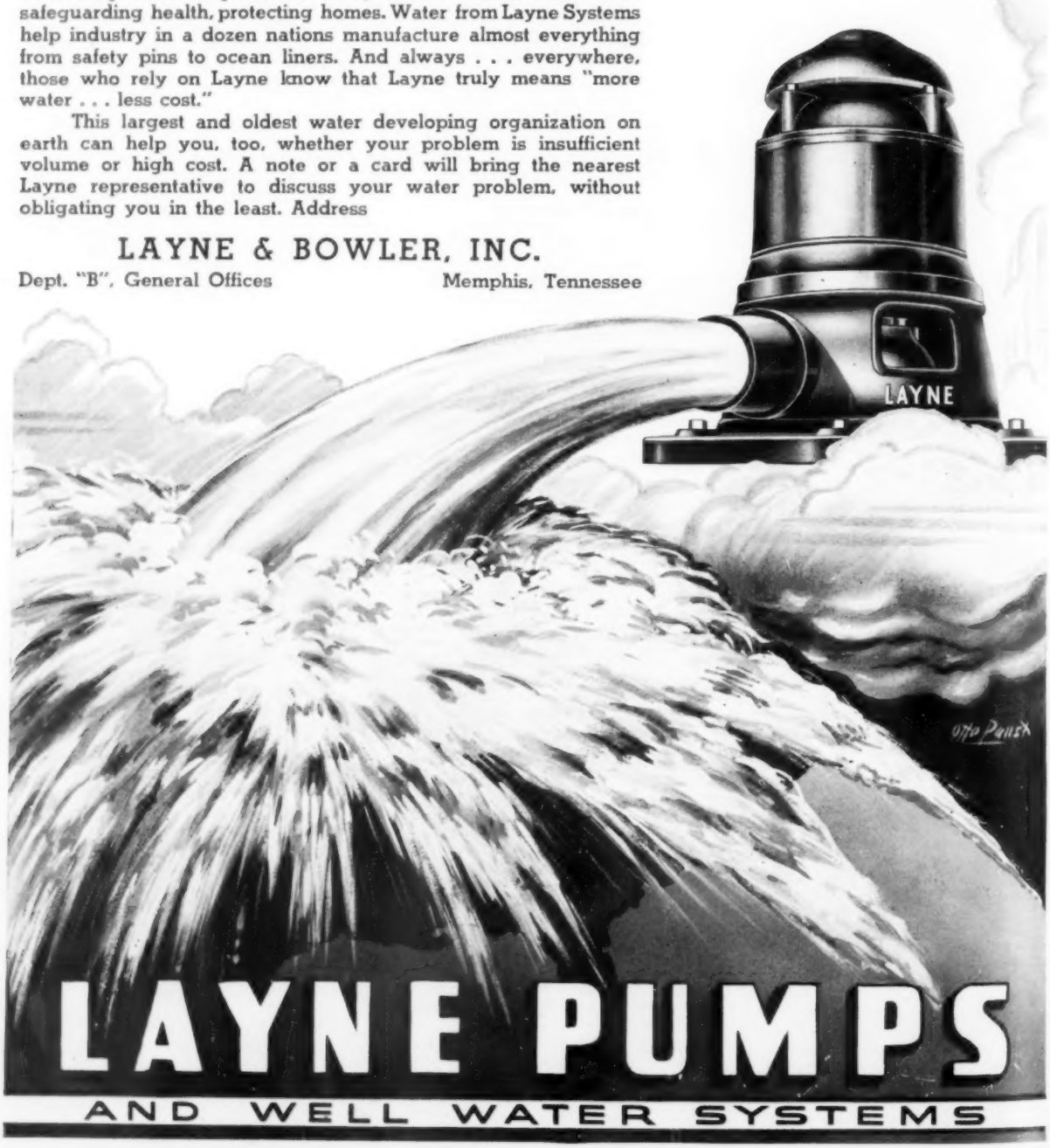


LAYNE PUMPS

AND WELL WATER SYSTEMS

Our Municipal Notebook

Only the Price of a Pack of Cigarettes

FOR the price of a package of cigarettes the average Detroit householder can buy all his major municipal services for one day. And that includes education, health, and recreation, police and fire protection, garbage and sewage disposal, and public lighting.

As shown in a chart prepared by Kenneth J. McCarren of the Detroit Board of Assessors and recently released by the National Association of Tax Assessing Officers, the whole tax budget costs the owner of a $4,000 house a fraction under 27 cents a day. If his property is assessed at $1,000, the daily load is less than 7 cents. Owners of $15,000 houses pay only about $1 daily.

In commenting on the costs of municipal services to the average Detroit householder, Albert W. Noonan, Technical Director of the Association, says: "The entire tax budget of Detroit for 1935-1936 is almost $55,000,000. This over-all figure seems huge to the average man, and he is apt to feel that the cost of operating the various municipal services is excessive. But when you relate this cost to prices of average commodities, the taxpayer really is getting one of the biggest bargains obtainable anywhere.

"Fire protection costs, per day, less than a cup of coffee. The cost of mailing a local letter would cover garbage and sewage disposal, lighting, health, and recreation. But the biggest bargain of all seems to be in education.

"It is well known how many parents welcome the opening of school, knowing that their children will be properly instructed and disciplined during the most irritating period of their lives by competent teachers. From nine o'clock in the morning until three in the afternoon mothers can safely forget their children, knowing they are being trained to be useful citizens. This great service costs the average Detroit taxpayer only 6¼ cents a day, less than the carfare his wife spends to attend a bridge luncheon.

"The fact that Detroit enjoys one of the highest health ratings in the country is due to the excellence of its sanitary facilities. All the average taxpayer pays for this insurance against disease is less than one cent a day."

Can We Afford Not to Have Recreation?

VOICING a strong plea that the integrity of local recreation bodies be maintained, and cautioning local leaders against leaning too heavily upon national funds and direction, Mrs. Eugene Meyer, Chairman, Westchester County (N. Y.) Recreation Commission, told the delegates at the National Recreation Congress, in Chicago last month, that recreation offered a valuable means of helping to save democracy in America. Mrs. Meyer said:

"Any community which loves the free institutions of this country and wishes to preserve them should be not only willing but anxious to support a recreation program in addition to its regular provisions for public schools.

"So definitely and clearly is this true that the property owner and taxpayer who is anxious to stave off fascism or communism must no longer ask himself, 'Can we afford recreation?' If he has any insight whatsoever, any interest in protecting and furthering our democratic form of government, he must say to himself, 'Can we afford *not* to have recreation?' In other words, let's stop our apologetic, defensive attitude toward our various local budget makers and demand that recreation be given the importance in our educational scheme to which it has proved itself to be entitled.

"But we have no right to prate of liberty nor to boast of our leisure so long as there are large numbers of children who do not know green fields, and just as many adults whose lives are spent in the unbroken routine and daily grind of the city worker and factory laborer."

Housing Allotments Disappointingly Small

THE cartoon here reproduced, showing Father Knickerbocker's shrunken share of the PWA housing funds, is typical of the disappointment felt in scores of cities when final word came from Washington last month as to the scope of the Housing Division's 1935 program. As against the $450,000,000 which might have been allotted for slum clearance and low-rent housing under the 1935 Relief Act, less than one-fourth of that sum was finally made available by the President for such projects.

The final program includes 45 projects in 31 cities; of these 8 are being constructed with allotments from the original PWA funds for housing; and 37 are being financed from the 1935 funds allotted to the Housing Division.

IN 1935 $25,000,000 WAS ALLOCATED FOR NEW CITY HOUSING — BUT BY 1936 THIS REDUCED TO $17,000,000
CONGRESS SUGGESTS $450,000,000 FOR HOUSING
BUREAUS TO SPEND $250,000,000
ARCHITECTS $10,000,000
HOUSING PLANS SURVEYS
ARCHITECTS DRAWINGS
CHAIRMAN POST ESTIMATES $15,000,000 TO SET UP AN OVERALL LOW-COST HOUSING AND SLUM-CLEARANCE
GOVERNMENT PROMISES

Rollin Kirby in the New York World-Telegram

Of this total of 45 projects, 20 are to be built on vacant sites, 23 on slum sites, one is to be built on land which is both slum and vacant area, and one in the Virgin Islands in an area yet to be determined.

The 31 lucky cities are:

Atlanta, Ga.	Lexington, Ky.
Atlantic City, N. J.	Louisville, Ky.
Birmingham, Ala.	Memphis, Tenn.
Boston, Mass.	Miami, Fla.
Buffalo, N. Y.	Milwaukee, Wis.
Cambridge, Mass.	Minneapolis, Minn.
Camden, N. J.	Montgomery, Ala.
Charleston, S. C.	Nashville, Tenn.
Chicago, Ill.	New York, N. Y.
Cincinnati, Ohio	Oklahoma City, Okla.
Cleveland, Ohio	Omaha, Nebr.
Columbia, S. C.	Philadelphia, Pa.
Dallas, Texas	Stamford, Conn.
Detroit, Mich.	Washington, D. C.
Indianapolis, Ind.	Wayne, Pa.
Jacksonville, Fla.	

Civic Revival in East Texas

AS this issue of THE AMERICAN CITY is being printed, communities in East Texas, under the leadership of the East Texas Chamber of Commerce, are celebrating Citizenship Week, October 27-November 2, with special emphasis on a revival of local civic responsibility. In a signed editorial headed "Civic Revival," in the October issue of *East Texas*, the Chamber's Vice-President and General Manager, Hubert M. Harrison, says in part:

"During the past five years the spirit of civic progress and community teamwork has been allowed to decline. This may be due to the serious problems that have faced the average man during the recent economic depression. It may be due to a growing disposition to look to Government for many of those services we formerly provided for ourselves. It is time to rededicate ourselves in service for community, county, region, state and nation, and a renewal of typically Texas self-reliance.

"With this thought in mind, leaders of the East Texas Chamber of Commerce are calling upon all loyal citizens to redouble their efforts for the community and to devote more time, thought and action for the development of resources at home.

"It is planned to observe Citizenship Week throughout East Texas as an annual recognition of the duty of the citizen to his community."

46 States Now Have Planning Organizations

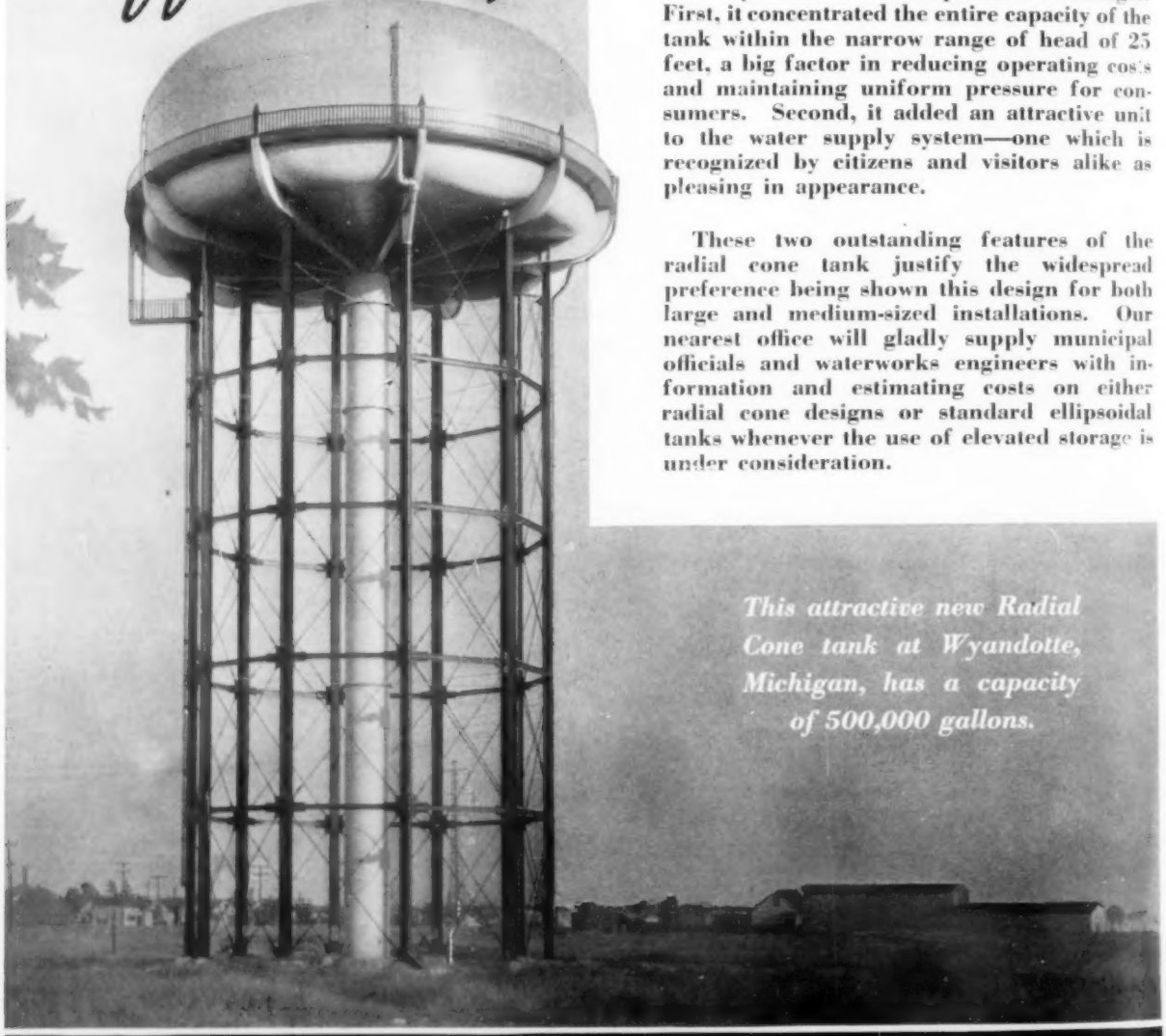
FORMATION of 46 state planning organizations in the short space of two years is reported by the National Resources Committee. Of these, 32 have been made permanent by legislative actio, the other 14 state boards having been appointed by the Governors on a temporary basis.

Medium Sized Tanks Utilize RADIAL CONE DESIGN Effectively

RADIAL CONE tanks have ordinarily been built in large capacities—one to two million gallons. This particular design, however, is not limited to large sizes.

Wyandotte, Michigan, recently installed a 500,000-gallon elevated tank 95 feet to bottom in its waterworks distribution system. By selecting the radial cone type of tank, this city secured two important advantages. First, it concentrated the entire capacity of the tank within the narrow range of head of 25 feet, a big factor in reducing operating costs and maintaining uniform pressure for consumers. Second, it added an attractive unit to the water supply system—one which is recognized by citizens and visitors alike as pleasing in appearance.

These two outstanding features of the radial cone tank justify the widespread preference being shown this design for both large and medium-sized installations. Our nearest office will gladly supply municipal officials and waterworks engineers with information and estimating costs on either radial cone designs or standard ellipsoidal tanks whenever the use of elevated storage is under consideration.



This attractive new Radial Cone tank at Wyandotte, Michigan, has a capacity of 500,000 gallons.

CHICAGO BRIDGE & IRON WORKS

Chicago.....2127 Old Colony Bldg.
New York.....3308-165 Broadway Bldg.
Cleveland.....2236 Rockefeller Bldg.
Detroit.....1501 Lafayette Bldg.
Philadelphia....1616 "1700" Walnut St. Bldg.
Boston.....1501 Consolidated Gas Bldg.
Birmingham.....1502 N. Fiftieth Street
Dallas.....1406 Dallas Athletic Club Bldg.
San Francisco.....1033 Rialto Bldg.
Houston.....2919 Main Street
Tulsa.....1625 Thompson Bldg.
Los Angeles.....1403 Wm. Fox Bldg.

Fabricating plants in CHICAGO, BIRMINGHAM, and GREENVILLE, PA.

Water Bills—Softening—Chlorination—Frozen Pipes

Exhibit Answers Question, "How Is a Light or Water Bill Made?"

THE Department of Water and Power, Los Angeles, Calif., demonstrated every step in the complex process of preparing more than 400,000 bills monthly in a public demonstration at the University of Southern California early in June. Actual bills of Los Angeles light and water customers were made out and mailed, illustrating the regular commercial practice of the Department. Consumers who visited the display, which was arranged as a part of the Institute of Government being held by the University, realized the ingenious equipment and careful methods utilized by the Department to insure maximum accuracy and speed in its commercial transactions.

The display was arranged to show the many operations in their natural sequence, beginning with the Addressograph Graphotype, which makes the stencils identifying customer accounts, and ending with the mail meter machines that stamp and seal the envelopes containing the bills for municipal light or water. More than 21,000 pieces of this type are mailed daily by the Department.

Included in the chain of operations is the most modern automatic equipment in commercial use in the world. A mechanical sorting machine is used in tabulating special account information, performing amazing tasks with lightning rapidity.

In addition to the bill-making demonstration, the Department showed how water samples are tested daily from all sections of the city in guarding the purity of the local water supply. A section of the Water Bureau laboratory made bacteriological, microscopical and chemical analyses.

The exhibits were located in the University of Southern California gymnasium building, which was open from 2:30 to 10 P. M. during a five-day session which was free to the public. A total of 5,642 visitors was recorded.

Is Lime-Softened Water "Doped" with Chemicals?

"THE water is doped with chemicals" is an expression which is often heard. Many laymen believe that lime makes water hard, but this is not true unless too much or too little lime is added in the treatment process. A brief explanation of what happens when lime is added to hard water will answer the question, "Why add lime to water to soften it?", so often asked of waterworks chemists, and also explains why the addition of lime does not "dope" the water.

Lime, when added to water in the proper proportions, is itself completely precipitated and, in addition, precipitates the soluble calcium and magnesium salts already present in the water being treated. These precipitates may be easily removed by sedimentation or filtration. For each pound of lime added to hard water, approximately 3½ pounds of solids are precipitated and thus removed from the water. It is a process whereby something may be taken from the water rather than adding to it.

—Printed by permission from "Water Supply and Treatment," by CHARLES P. HOOVER, Water Softening and Purification Works, Columbus, Ohio, published as copyrighted Bulletin 211, by the National Lime Association, Washington, D. C.

Chlorination of the Milwaukee Water Supply

THE purification of the water supply of Milwaukee, Wis., with liquid chlorine, which was continuous throughout 1934, was, as always, carefully supervised. The amount of chlorine now varies from 48 to 112 ounces per million gallons of water, or between 0.36 and 0.84 ppm.

Daily bacteriological examinations are made of the raw and treated water. Complete bacteriological analyses are also made of water samples collected monthly at representative points in the distribution system as an additional check on the effectiveness of chlorination. During five days in September, 1934, when the sewage disposal plant was shut down, and for several weeks thereafter, higher residual chlorine was maintained and hourly tests were made.

Twice during 1934, when heavy storms had roiled up the lake, the Commissioner of Health was obliged to warn the citizens to boil the city water. This served to emphasize again the necessity of a water purification plant for the city, the start of actual construction on which was one of the outstanding features of 1934.

—From Municipal Activities of Milwaukee, Wis., for 1934, Annual Consolidated Report of the City Council.

Special Transformers Thaw Frozen Pipes

FROZEN water pipes varying from ½-inch iron to 2-inch copper pipe and in length varying from 20 feet to over 200 feet have been successfully and conveniently thawed by the use of special transformers originally designed by Canadian Westinghouse engineers for use in making the connections of the windings of large water-wheel generators and similar equipment.

The special transformers used were built somewhat after the design of large bushing type current transformers. The primary winding is wound on circular punchings in four sections suitable for 125 volts, 25 cycles per section. These sections of the primary winding can be connected in series, series parallel or parallel for use on 550, 440, 220 and 110 volts on 25 or 60 cycle.

The secondary connections are made to suit the job by threading cable through the opening, each turn giving a secondary voltage of 2.5 volts with the series connection of 550 volts primary and 2 volts for the 440-, 220-, and 110-volt connection. This gives very flexible arrangement, making it possible to obtain a suitable voltage to give any current value desired, as for example ten turns to give 20 volts, 200 amperes for thawing 40 feet of ½-inch pipe in 3 minutes, ten turns to give 350 amperes for 40 feet of 1¼-inch pipe thawed in five minutes, six turns to give 1,200 amperes to thaw 200 feet of 2-inch I. P. S. copper pipe in one hour.

This method has a great advantage over the use of ordinary distribution transformers or welding equipment on which the maximum permissible current is limited by the full load capacity of the equipment. With this special transformer very high currents are available at very low voltage.

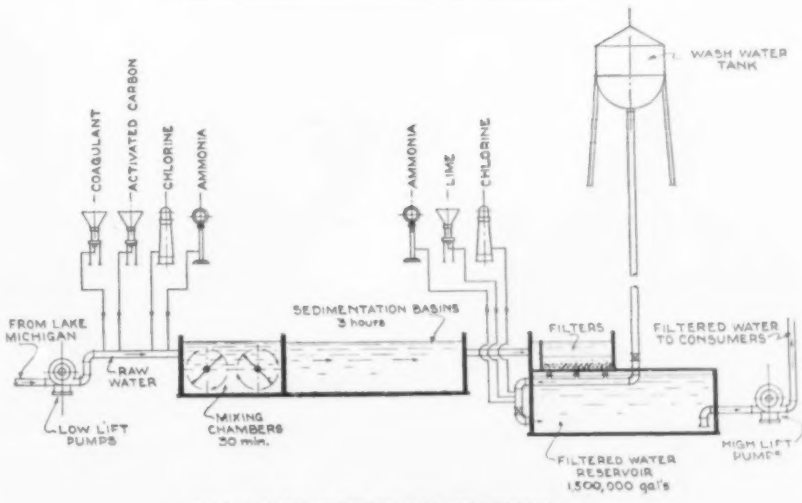


DIAGRAM OF PURIFICATION PROCESSES AT MICHIGAN CITY, INDIANA

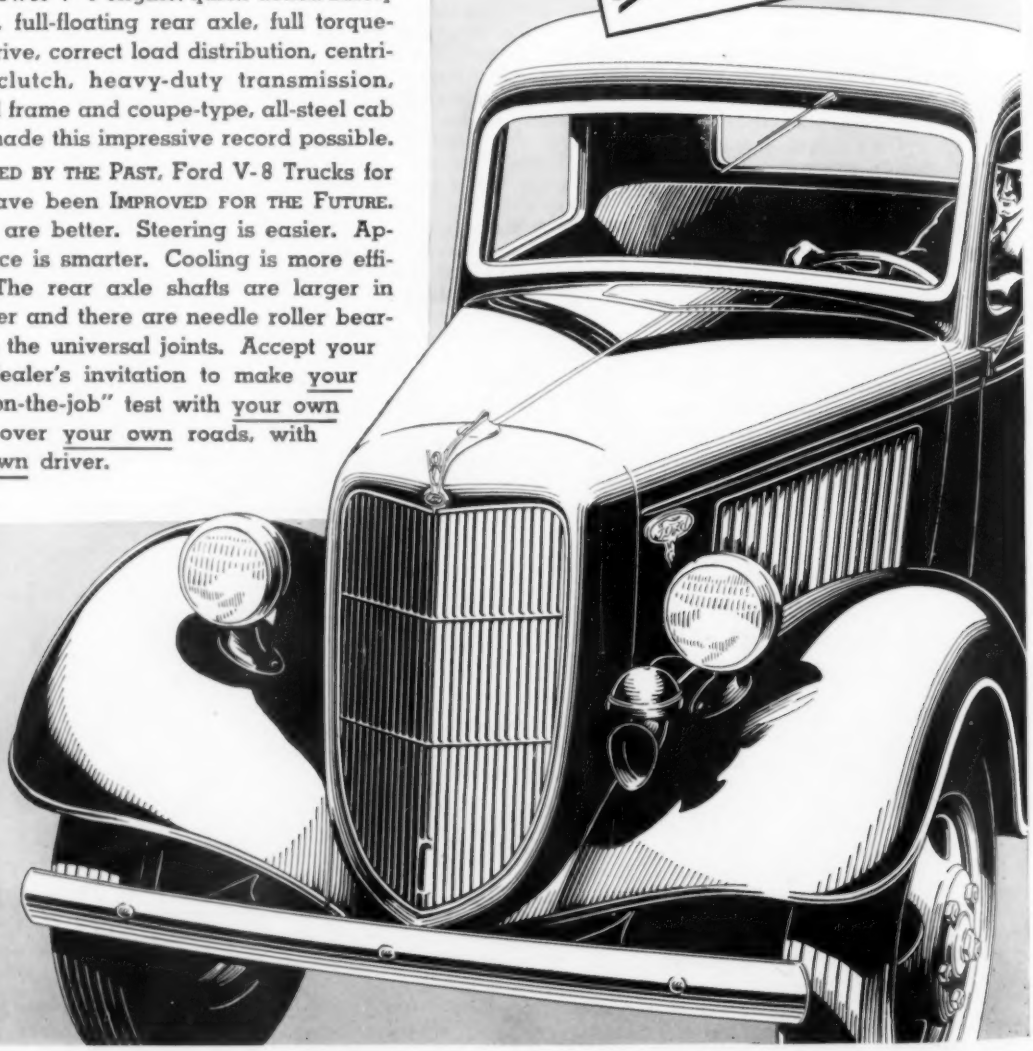
THE 1936
FORD V-8
TRUCKS AND COMMERCIAL CARS

OWNERS of more than 300,000 Ford V-8 Trucks and Commercial Cars have proved V-8 economy, reliability and performance in BILLIONS OF MILES of service under every condition of load, road and weather.

Such quality truck features as the 80-horsepower V-8 engine, quick-action safety brakes, full-floating rear axle, full torque-tube drive, correct load distribution, centri-force clutch, heavy-duty transmission, rugged frame and coupe-type, all-steel cab have made this impressive record possible.

PROVED BY THE PAST, Ford V-8 Trucks for 1936 have been IMPROVED FOR THE FUTURE. Brakes are better. Steering is easier. Appearance is smarter. Cooling is more efficient. The rear axle shafts are larger in diameter and there are needle roller bearings in the universal joints. Accept your Ford dealer's invitation to make your own "on-the-job" test with your own loads, over your own roads, with your own driver.

Proved BY THE PAST
Improved FOR THE FUTURE



Municipal Engineers' Activities

Snow Removal in Oak Park, Ill.

WHENEVER weather conditions make it necessary, snow is removed from the sidewalks and street pavements in Oak Park, Ill. During the calendar year of 1934, the 200 miles of sidewalks in the village were plowed with steel V-shaped plows drawn by horses from the garbage and rubbish collection department. The teams are started out early in the morning and, as a rule, all sidewalks are plowed by noon.

Sidewalks leading to transportation stations and to schools are plowed first. All street pavements in the village are plowed. Boulevards, through streets and business districts are plowed first; that is, the snow is pushed from the pavement to the curb. After the principal thoroughfares are plowed, the residential streets are cleared.

Snow in the business districts, the principal intersections and around public schools, churches, etc., is removed by truck and disposed of in vacant lots around the village.

In February and December, 1934, there was considerable snow. The 200 miles of sidewalks in the village were plowed five times. Boulevards and through-streets, of which there are 11.5 miles, and all other streets, of which there are 100 miles, were plowed twice.

The total cost of the snow removal in 1934 was as follows:

Labor	$2,547.95
Superintendence	218.95
Teams	143.30
Trucks	317.36
Hired teams	50.00
Repairs to equipment	13.00
Supplies	339.92
Tools and equipment	32.50
	$3,662.98

494 loads of snow removed
25,300 pounds of salt used
11 cubic yards of sand used
147 cubic yards of cinders used
4,000 pounds of calcium chloride used

DUDLEY C. MEYERS,
Commissioner of Public Works.

Process Developed to Salvage Tin from Old Cans

THE enormous number of tin cans used by the American householder and disposed of via the city's refuse collection system accounts for a huge tonnage of tin and sheet metal. From time to time THE AMERICAN CITY has received inquiries from cities which had believed they could set up a recovery plant and salvage some of this material. Up to the present time no practical method has been available.

Business Week in a recent issue reports that a new process, now in the hands of the P & R Development Co., with an experimental plant in Los Angeles, has recovered from 68 to 93 per cent of the tin from tin cans in a series of tests recently completed. The tin so recovered turned out to be 99.9 per cent pure metal, and the remaining steel base to be of such quality as to permit it to be melted and rolled into mild steel plate.

Standard tin cans have a coating of tin ranging from 1¼ to 6 per cent of the total metal content. In the recovery process the cans are shredded, placed in a cylindrical apparatus and rotated in a chemical mixture pumped into the cylinder. Tin comes off the cans in solution and is recovered by electrolysis. Under a slightly different method, the tin is deposited in metallic form.

According to *Business Week*, the inventor claims that a commercial plant with a capacity of 225 tons of recovered metal a day can be set up for approximately $65,000. Maximum costs of commercial operation are estimated to run about $6.75 a ton, divided as follows: chemicals, $1.43; shredded cans, $2.50; overhead, $0.25; utilities (including power for electrolytic operation), $1.50; labor, $2.50. Officials of the company plan either to begin commercial operation themselves or to license the process to others. Some cities may possibly be interested in this, but for the majority of cities, the process is still too expensive, or requires too large a daily volume of tin cans to warrant the installation of a recovery plant.

Interstate Sanitation Commission Active in New York Area

MEMBERS of the new Interstate Sanitation Commission of New York, New Jersey and Connecticut are undertaking to cleanse the waters of the New York Metropolitan area and so remove a scandal which has existed for years. The broad purposes of the Commission are to provide "for the abatement of existing pollution in the tidal and coastal waters in the adjacent portions of the signatory states defined as coming within the district and consistent with such objects; to cause the enactment of adequate legislation which will enable each of these states to put and maintain the waters thereof in a satisfactory sanitary condition and particularly to protect public health; . . ."

At present the raw sewage from a population of over twelve million persons and the trade wastes of over a hundred thousand industries is discharged into the harbor and coastal waters of the metropolitan district, with practically no purification, regulation or control.

Since the 1914 report of the Metropolitan Sewerage Commission of New York was made, a few municipalities and groups of muncipalities in each of the three states have installed sewage treatment plants for their own protection; but the type of treatment installed and the volume so treated have little effect on the general problem and have not kept pace with the tremendous growth of the district. The population today is twice that reported by the New York Commission in 1914, and the quantity of sewage now discharging into the waters of New York Harbor within the metropolitan district has been estimated to be 1,354,000,000 gallons daily, which in a year would carry 1,600,000 tons of dry sewage solids into those waters. The quantity of sewage discharged into the harbor has for years exceeded the assimilating power of the water.

Contrary to a very general belief, those waters do not cleanse themselves to any considerable extent with the ebb and flow of the tide. The assumption has persisited for many years that sewage and wastes discharged into the harbor were promptly carried away by vast quantities of pure water coming from the sea, Long Island Sound, and the Hudson River. Studies made by the United States engineer officers have shown this to be not a fact, and that the water in the harbor oscillates back and forth with the ebb and flow of the tides for long periods of time. The tidal currents that flow up the bay with the tide are not infrequently found to be more heavily polluted than those which pass down.

It is not so many years ago that the fishing and shellfish industry in the metropolitan district was a thriving commercial enterprise, representing a large capital investment and an important source of revenue to the three states now interested in this movement to abate pollution. Today the only remnant of that industry exists in certain portions of Long Island Sound, though a revival of the industry in Raritan Bay and Sandy Hook Bay is promised as a result of independent action by New Jersey.

The prevailing oil pollution is as serious to fish and shellfish as is the sewage pollution, in that it not only renders them unfit for food, as does the sewage, but actually kills the fish, partly through the ruination of their spawning beds and partly through preventing a normal supply of oxygen in the water.

More important is the constant threat to the public health, while the social and monetary losses resulting from polluted beaches defy calculation.

Prosperity Is Just Around the Corner of the Garbage Can

HENRY A. NELSON, Superintendent of Public Works, Racine, Wis., is quoted in a recent Associated Press dispatch, as saying that, according to his own business barometer, prosperity is returning. He watches the type of garbage hauled to the city incinerators.

"The appearance of more melon rinds, sweet corncobs and the wastage of more food than in the tough times is a good indication that good times are coming back," he said, according to the report.

2 *good vehicles combined in* 1

A COMBINATION TROLLEY COACH AND GAS-ELECTRIC BUS

for utmost flexibility of service . . . . . .

WELCOME, the all-service vehicle! In it, the Public Service Co-ordinated Transport of Newark, N. J., has united two successful ideas. In it, are combined a trolley coach for city operation and a gas-electric bus for outlying districts beyond the trolley wires. That's flexibility — and offers a new opportunity for planning a well-co-ordinated mass-transportation system.

The all-service vehicle is capable of rapid acceleration and high schedule speed. It is built for long life, quiet running, and low maintenance cost. Public Service has 62 in operation. General Electric engineers co-operated in adapting G-E electric equipment to this new type of vehicle. General Electric Company, Schenectady, N. Y.

232-11

GENERAL ELECTRIC

Do you mention THE AMERICAN CITY? Please do.

Street Cleaning and Snow Removal

Sheridan, Wyo.

WE use a power flusher to move the dirt from the streets into the gutter, and then hand labor to pick it up and load it onto dump-trucks. The motor equipment of the Street Department consists of one Austin No. 77 motor patrol, a power flusher on an International truck, a Fordson tractor, and two Ford dump-trucks.

There are no restrictions on parking after 6 P. M. The business districts are cleaned before the parking starts, and cars are moved back and forth as much as possible where necessary.

The catch-basins are cleaned with hand labor, using long-handled shovels and loading the material to dump-trucks.

H. B. SHARP,
City Commissioner.

Knoxville, Tenn.

PRESSURE flushers and a motor pick-up sweeper constitute the battery used to fight dirt on the streets of Knoxville. There are three flushers, varying from 3 to 5 tons in capacity, and one Austin motor sweeper.

It is difficult to handle the parked-car nuisance. We move the cars if possible, otherwise work around them.

Catch-basins are hand-cleaned and water-flushed by a crew which moves from basin to basin in a light motor truck.

HAL H. HALE,
City Engineer.

How Clean Are Your Streets?

What method of street cleaning do you use?
What motor equipment have you?
How do you handle the "parked-car" nuisance?
How do you clean catch-basins?

Huntington Park, Calif.

HAND sweepers are used on all except paved streets, and a motor pick-up sweeper is used on them. Catch-basins are cleaned with a Federal flusher.

On all the main streets one- and two-hour parking signs are installed at frequent intervals, which greatly reduces the parked-car nuisance. No parking is permitted between 2 A. M. and 4 A. M.

W. E. FORD.
Street Superintendent.

Albany, Ga.

THE streets of Albany are cleaned by an Elgin pick-up motor sweeper, size B, with a 1½-ton Dodge and a 1½-ton Ford dump-truck for disposing of the trash and dirt deposited at regular intervals from the sweeper hopper. These two trucks are also used for regular street maintenance. There are also three Ford and two Chevrolet dump-trucks of 1½-ton capacity for collecting trash and garbage from the streets and alleys. Two old Negro laborers are used to collect waste paper during the daytime. The approximate cost of street cleaning per gutter-mile is 72 cents.

We keep the streets reasonably clear during the hours when intensive cleaning is under way by having the parking spaces in the business section well marked, and also we have a no-parking ordinance from 1 A. M. to 6 A. M. which is enforced by the Police Department.

Catch-basins are cleaned by hand with dip-shovels.

J. FRED SMITH,
Superintendent of Streets.

South Bend, Ind.

WE operate three motor pick-up sweepers, two Elgin and one Austin. These are operated from 4 P. M. to 8 A. M. The dirt is picked up by trucks from the various locations where the sweepers are emptied during the night. We use one truck and three men doing hand sweeping on streets where the machines cannot do good work owing to parked cars. There is an ordinance prohibiting parking on any street from 2 to 5 in the morning but it has proved impossible to enforce the ordinance. On outlying streets the machines are able to dodge around cars and do fairly good work.

Catch-basins are cleaned with water pressure, using a 1,500-gallon flusher. When this fails to clean them, they are dug out by hand.

J. C. WEER,
Commissioner of Streets.

Snow Removal and Sanding

SNOW removal and the sanding of slippery places is of an emergency nature which cannot be definitely planned but an organization must be prepared.

Snowfalls occur at any time of day or night and vary considerably in intensity. It is not wise to wait until there is enough snow to start plowing before getting the plows attached to the equipment. All trucks and tractors of the Wayne County Commission are equipped with snow-plow frames in the fall, to which the blades can be attached on short notice. At the first indication of a snowstorm these blades are attached and operations started as soon as necessary.

Slipperiness is caused on a highway by the compacting of light snow under traffic or by a sleet storm. Intersections, hills and curves must be covered with an abrasive material such as cinders, sand or fine slag as soon as they become slippery, or serious accidents will occur. The material used is treated with calcium chloride so that the particles will readily embed themselves in the icy surface.

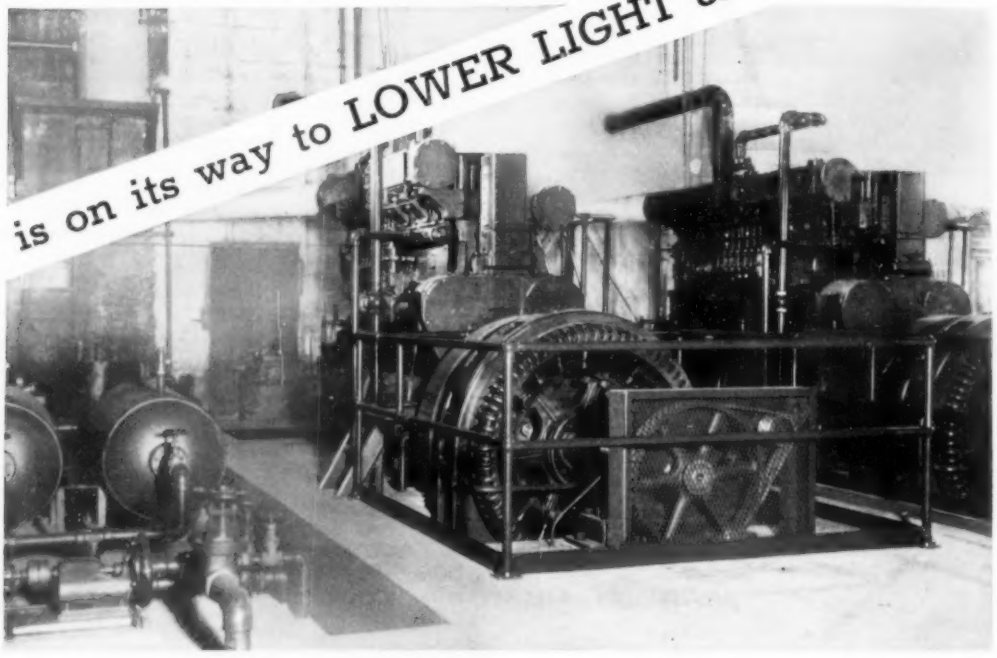
—From the Twenty-Eighth Annual Report of the Board of County Road Commissioners, Wayne County (Detroit), Mich.

OPENING U. S. ROUTE 550 IN THE COLORADO MOUNTAINS

Working betweeen Durango and Silverton last spring, this tractor cleared 5 miles per day using only 3 gallons of diesel fuel per hour at elevations from 10,000 to 12,000 feet

Another city — PAWNEE, OKLA.

is on its way to LOWER LIGHT & POWER COSTS



with McINTOSH & SEYMOUR ECONOMY DIESELS . . . .

PAWNEE adds its dot to the ever broadening map of cities where steam gives way to the proved economies of M-S Diesel Engines.

In speaking of Diesel economy, whether for municipal or industrial plants, we refer to basic economies as they materially affect lower kw rates, reduced taxes, and earn a profit on the investment.

That is not all—for Pawnee city officials learned from other cities that M-S Diesels very often pay for themselves in a time so short as to be almost incredible.

We do not expect municipal or industrial executives to accept mere claims; we much prefer that you make an unbiased investigation at the many points of M-S Diesel operation. And to engineers, we invite close investigation of these advanced types of Diesels—comparison of their compactness, simplicity, accessibility, fine workmanship, adaptability, to the particular service wanted.

M-S Diesels stand on their 20 years of performance plus progressive engineering—they save money under the conditions of tomorrow.

McINTOSH & SEYMOUR CORPORATION

(DIVISION OF AMERICAN LOCOMOTIVE COMPANY)

MAIN OFFICE AND WORKS, AUBURN, N. Y.

NEW YORK, N. Y., 30 Church St. BOSTON, MASS., 20 Newbury St. CHICAGO, ILL., McCormick Bldg. WASHINGTON, D. C., Barr Bldg.
HOUSTON, TEXAS, Esperson Bldg. KANSAS CITY, MO., Commerce Trust Bldg. SAN FRANCISCO, CAL., Bourn Bldg.

Sewage Treatment and Sewer Maintenance

The Operation of Separate Sludge Digestion Tanks

IN a paper on "Gas Collection and Sludge Heating," by H. L. Kinsel, Assistant Engineer, Pennsylvania Department of Health, published in the Plant Operation Section of the *Sewage Works Journal*, interesting conclusions are presented of considerable assistance to sewage-works operators.

In order to avoid the blowing of gas dome seals, the flow of oil from the seals over the tank roofs, the extinguishment of the gas flame in the boiler, and the admission of air, which might form an explosive mixture within the digestion tanks, it is advisable to provide gas holders, floating covers or other means of limiting gas pressure changes within the digestion tanks.

Insulation of exposed gas lines is a desirable precaution against freezing where cold winters are prevalent.

Gas outlet pipes should be located at a liberal distance above the sludge level in digestion tanks, to minimize the possibility of sludge or scum filling the gas lines, meters, or other equipment during periods of violent gassing or foaming.

Disintegration of gas meters by corrosive substances in the gas, and the formation of condensate and accumulation of deposits on boiler sections and in boiler stacks, are matters which merit thoughtful attention.

Apparently, the coefficient of heat transfer from hot water within heating coils to sludge outside the coils fluctuates when there are variations in the rate of heating-water circulation, in the temperatures of heating-water and sludge, and in the viscosity of the sludge. Further study should be made to determine the extent to which the heat transfer coefficient is affected by these and other variable factors. There is also need for data regarding heat losses through concrete walls of sludge-digestion tanks.

Sewer Maintenance and Poplar Trees

THE combined storm-water and sanitary sewer system of the village of Oak Park, Ill., is maintained by the Street Department. The maintenance consists in cleaning the main sewers wherever necessary, particularly those with flat grades. All catch-basins on the sewer system are cleaned once a year, and more often in special locations where conditions make it necessary.

The cleaning of the main sewers is done with a sewer-cleaning machine, and catch-basins are cleaned with an Elgin Auto Eductor.

There has been a constantly increasing number of complaints of stoppage of house drains and catch-basin connections by the roots of poplar trees. In 1934 there were approximately 125 cases where the Street Department had to dig up the parkway and street to rod out and clean out sewer connections. In about 50 per cent of these locations, the trouble was due to the drain's being filled up with tree roots, principally poplar tree roots.

The dirt removed from catch-basins is hauled to the village dump. The cost of cleaning catch-basins and other pertinent data on this work are given in the tables below.

Labor	$1,016.50
Superintendence	84.00
Trucks	216.79
Storage of Eductor	75.00
Repairs to equipment	63.58
	$1,455.87

Catch-basins cleaned	1,277
Cu. yds. of dirt removed	714
Cost per catch-basin	$1.14

DUDLEY C. MEYERS,
Commissioner of Public Works.

Sewage Treatment by Chemical Precipitation

CHEMICAL methods of sewage treatment when used with intelligence are apparently capable of producing a higher degree of treatment than has been attributed to them in the past twenty years. There are two distinct fields where these methods apply. The first is where the process stands entire and complete as a distinct competitor of biological processes, and the second is as an auxiliary to existing processes or as a temporary measure during time of peak loads.

The use of chemicals to aid precipitation of sewage solids and increase the degree of purity of effluents dates from about 1760. In England in 1762 the first British patent was taken out. From that time experimentation proceeded rapidly and patents were issued by the hundreds. The peak was reached between 1880 and 1890 with the advent of biological methods. Sanitarians at that time were tired of constantly fighting the sludge problem of chemical precipitation, which, incidentally, should not be a problem today.

The development of chlorinated copperas was probably the pilot that started the present avalanch of chemical studies on sewage, but on the whole, all the modern methods are strikingly similar to the older ones in all respects except the method of concentrating and removing sludge, and the methods of chemical control.

—Introduction to a paper on chemical precipitation by Michael J. Blew, Research Engineer, Philadelphia, Pa., presented before the Ninth Annual Conference of the Pennsylvania Sewage Works Association.

Sewer Rentals

A study of the Revenue Bond Acts of the 48 states, and how cities have used them, will appear in the 1935-36 Municipal Index.

City Produces Own Concrete Sewer Pipe as Work Relief Project

THE construction of pre-cast concrete sewer and culvert pipe was first attempted in Lancaster, Wis., as an Emergency Relief Administration project in May, 1935. Rebuilt equipment consisting of a 15-inch concrete pipe form, a ½-hp motor and a 2-cubic-foot mixer were purchased for $70. Some assistance in planning the project was secured from the company furnishing the cement, from the Portland Cement Association, and from the pipe manufacturers.

The pipe forms consist of a collapsible inner form, an outer form in two sections, a shoveling plate, a header ring which forms the tongue, and bottom pallets, which form the groove. One bottom pallet is required for each section of pipe to be cast each day.

Concrete sewer pipe is made in two classes, reinforced and plain. Ordinarily, the reinforced pipe is used for culverts and the plain pipe for sewers. Most of the authorities consulted recommended a 1:2:3 mix for either class of pipe, and some pipe was cast with this mixture. A very small amount of water was used in the mix, just enough so that a handful of the mixture would hold its shape when pressed. The workability of this dry mix was increased by mixing for a longer time, five minutes being the standard. As the material was hand-tamped in the forms, there were no delays between batches. As soon as the form was filled, the top was struck off with the header ring, the forms removed and set up on another pallet. The groove and tongue were made of a rich mortar of sand and cement to insure a tight joint.

Owing probably to the fact that the coarse aggregate, which ranged from ¼- to ½-inch material produced at the city quarry, was used, the 1:2:3 mix was a little harsh and did not produce as good-looking or dense pipe as the commercial article, although the strength was satisfactory. This mixture has been changed to 1:2½:2, which gives a good strength and better density and plasticity than the earlier mix. The pipe is removed from the pallet after 24 hours and covered with burlap, which is kept wet for five or six days.

The cost figures show that 15-inch plain concrete pipe is produced for 31 cents per foot, which includes cement, sand, crushed stone, power and light, and amortization of equipment. The "factory" is manned by three relief men, who also produce concrete building blocks to be used in the construction of a shop and warehouse for city tools and equipment. Assuming that a similar project will be approved under WPA, the city intends to produce next season's entire storm-sewer requirements during the coming winter.

—Hon. J. M. THOMPSON, Mayor, Lancaster, Wis., in *The Municipality*, Madison, Wis.

Startling Reduction in FIRE LOSSES at Lenoir, N.C. Demonstrates Value of GAMEWELL Municipal FIRE ALARM system

CITY of LENOIR
NORTH CAROLINA

OFFICE OF FIRE DEPARTMENT.
August 2nd, 1935

Mr. Chas. Berst,
District Sales Manager,
The Gamewell Company,
910 Peters Building,
Atlanta, Ga.

Dear Mr. Berst:

The installation of our Gamewell Fire Alarm System was completed and the system placed in operation March 27th, 1935. We have 93 Gamewell Fire Alarm Boxes in use in a city of approximately 7,000 population.

Since the installation, we have had 100% box alarms, which we feel is unusual for a city that has always depended on the telephone for reporting fires.

From March 27th, to August 1st, 1932, we had $309,000. worth of property at risk and a loss of $96,000. For the same period in 1933, we had $75,900. at risk and a loss of $42,420. In 1934, during a corresponding period, we had $96,250. at risk and a loss of $40,066. For this same period in 1935, or in other words since the Gamewell System was installed, to date, we have had $1,254,250. of property at risk and a loss of only $581.

Our explanation of this small loss is that every alarm we have received has been a box alarm, which was fast and accurate, enabling us to get on the job more quickly, and thereby keep the loss low.

We are extremely proud of our low loss ratio and the fact that all our alarms have been box alarms. The Gamewell Fire Alarm System is fast, accurate, and dependable.

This letter is sent to you without solicitation.

Yours very truly,
Lenoir Fire Department
A. T. Cottrell,
Supt. of Alarms.

100% Box Alarms Cut 4-Month Fire Loss to $581, Compared With Previous Average Fire Loss of $61,162, When Telephones Were Relied Upon Entirely

TWO LENOIR, N. C., OFFICIALS transmitting an alarm over their new Gamewell Fire Alarm System which has reduced the city's fire losses tremendously.—W. J. Lenoir, Mayor (right) and G. C. Courtney, Fire Chief (left).

Lenoir, N. C., has just provided us with one of the most striking examples of the value of a Gamewell municipal fire alarm system that we have ever seen. During a four-month period they received 100% box alarms which reduced their fire losses to $581 against an average four-month fire loss of $61,162 for the three years prior to the installation of the new system when the city relied entirely on telephones for the transmission of fire alarms.

Besides showing the value of a modern municipal fire alarm system these figures establish the soundness of adequate fire alarm box distribution. In this city of approximately 7,000 they have 93 latest type Gamewell fire alarm boxes in service, thus making it possible for citizens to find a box quickly in any part of the city.

In the face of the convincing facts reproduced above, every responsible fire department or other municipal official should take steps to equip his city or town with a modern fire alarm system having an adequate number of fire alarm boxes. Write for a copy of our booklet AC700 telling how to plan a modern fire alarm system for your city.

THE GAMEWELL COMPANY

"A Box A Block"

NEWTON, MASSACHUSETTS

Public Safety

"The Criticism That Is Hurled at the Fire Service"

Is the chief of a fire department a fire fighter, an engineer, an administrator, a politician, or in many instances just an eminently practical man, something in the nature of a police chief? Reducing the question to military terms, is he a line officer or a staff officer?

The line officer acts instantly, suiting the act to the crisis of the moment; his job is to put out the fire. The staff officer, on the other hand, pores over the designs of ordnance and the maps of future battlegrounds; the actuality of the conflict is remote. He perceives a hill that must be held; while the line officer is confronted by a newly placed machine gun that is killing his men.

Should a fire chief, for instance, design, select and purchase apparatus and hose? It is contended by many that he should; that, as he uses the equipment, he should be required, let alone permitted, to select it.

The facts of the case are that the manufacturers prefer to deal solely with the fire chief. He has a real stake in the quality of the product. He and his men must use it, and its failure will come back to him. But even those who assert this point, suggest at the same time that there should be more college courses in fire engineering. But would men technically minded make good fire chiefs in the present meaning of the job? Possibly the best man for the job would be of little value at a fire.

The doings at the 63rd convention of the International Association of Fire Chiefs at Knoxville pointed the range of a fire chief's duties. They included analysis of fires, preparation for major disasters, fire hazards, consideration of civil service law, keeping the men fit, relation between the water and the fire departments, and the progress and condition of equipment.

The first purpose of a fire department is of course to extinguish fires. Prevention, while a close second and of growing importance, is even more the job of the building department and the writers of the building code. All the paraphernalia of the fire department is aimed toward putting out fires, and rescue work.

The alarm is the first step toward action. "A great deal of the criticism that is hurled at the fire service," said Chief Selden R. Allen of Brookline, at the convention, "properly belongs to delay in the transmission of alarms." He pointed out the familiar limitations of the telephone, and endorsed automatic detection and transmission of alarms. Continuing: "I have had considerable experience with two-way radio. I am a firm believer in it, but I cannot see my way clear or see far enough into the future to really believe there is any substitute for street boxes. To me, there is no great mystery in fire protection in some of our hazardous districts under normal conditions. I believe it narrows down to this: Plenty of hydrants closely spaced, plenty of fire-alarm boxes so that a passer-by in taking a fire alarm may send it in properly; and, above all, we want to remember that this area, from the time the fire starts until the department reaches the scene, is the area in which all our tragedies, or the major portion of them, occur. Our major fires result from this delay, and many conflagrations are lurking around the corner. So I want to leave just this thought with you—that I believe the day has not arrived when we can discard the thought of adding fire-alarm boxes to our service for the protection of our citizens."

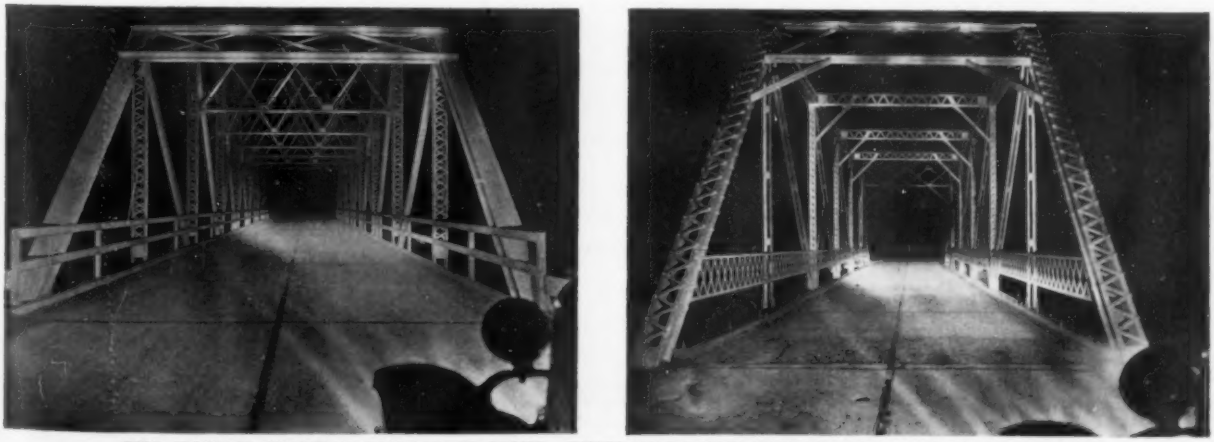
Chief Charles J. Brennan of San Francisco is the new President of the International Association of Fire Chiefs. The 64th convention will be held at Toronto for the first time since 1920.

White and Aluminum Paint at Night

THE fundamental requirement for safe night driving is visibility. The accompanying photographs are of two similar bridges on Illinois Highway Route 82, the one on the right painted with aluminum paint and the one on the left with white-lead paint, painting done about the same time. Illuminated by the headlights of the same automobile, the same night, with lens opening and exposure the same, the two bridges appear to have the same degree of visibility.

C. E. Deleuw, Assistant Chief Engineer of the Illinois Division of Highways, Springfield, points out that while it is a coincidence that these two bridges were painted at the same time, back in the spring of 1932 such a study of both visibility and lasting qualities of paint was made on Route 24 between Springfield and Rochester, both Illinois. Here again, aluminum paint was used on one bridge, white paint on the other. "It was evident after painting," writes Mr. DeLeuw, "that the diagonal members of the bridge painted with white paint had considerably greater visibility at night than the bridge which was painted with aluminum paint. The vertical members of both bridges were satisfactorily illuminated by both paints.

"These two bridges were recently examined by an engineer from the Maintenance Office, who reported that the paint on both bridges was still in fair condition. An official examination of these bridges made at night, August 8, 1935, indicates that the night-time visibility of both paints, after three years of service, is adequate for night driving, although the bridge painted with aluminum paint is slightly darker in shade."



TWO ILLINOIS HIGHWAY BRIDGES AT NIGHT; WHITE-LEAD PAINT ON LEFT; ALUMINUM PAINT ON RIGHT

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NOVEMBER, 1935

VOL. L. No. 11

The American City

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The 1935 Public Works Congress

Reports of Progress Under PWA and WPA Programs

PUBLIC Works is the major topic in all recovery and reemployment conversations today, and what conversations do not include some reference to recovery? The importance of the city engineer and public works official in the program of recovery was given full recognition in the 1935 Public Works Congress held in Cincinnati, Ohio, October 14, 15 and 16. This meeting was the 41st Annual Conference of the American Society of Municipal Engineers and the 16th Annual Conference of the International Association of Public Works Officials. The Congress was replete with valuable papers and addresses, and its distinctive feature was the attendance of a large group of department heads from PWA and WPA Washington offices. For two days public works officials had the privilege of personal conferences with this group, individually and collectively, and great satisfaction was expressed on the part of both Federal and local officials that they had smoothed a way for more rapid approval of projects in the recovery and reemployment program.

W. J. Galligan, Chairman of the Joint Administrative Board, called the Congress to order Monday morning, October 14, presenting A. E. Roche, President of the International Association of Public Works Officials, who introduced Anthony B. Dunlap, Chairman pro tem of the Cincinnati City Council, who brought the greetings of the city on behalf of Hon. Russell Wilson, Mayor. Harrison P. Eddy, Jr., President of the American Society of Municipal Engineers, replied.

The remainder of the morning was given over to a group of short discussions of the major characteristics of the public works field in 1935 and new practices developed during the year. John H. Neeson, Chief Engineer, Bureau of Engineering and Surveys, Philadelphia, Pa., presided.

The Discussions

E. S. Rankin, Division Engineer, Division of Sewers, Newark, N. J.—Progress has been slow in northern New Jersey because the banks have agreed not to finance bonds. Such work as has been done has been financed by PWA, including the new Pennsylvania Railroad station and a subway in the old Morris Canal. This was a cooperative effort between the city, the Railroad, and the Public Service Corporation, and provides a terminus for the Pennsylvania Railroad, bus lines, trolley cars, and the Hudson and Manhattan Tubes. Other proposed projects are the new City Hospital and work on the Municipal Airport. Newark has submitted $10,000,000 in WPA projects.

Paul W. Maetzel, Chief Engineer, Department of Public Service, Columbus, Ohio.—The major program has been under PWA on a 70-30 basis. This has included new sewage-treatment works, intercepting, relief, sanitary, and storm sewers, a new east wing for the City Hall, two incinerators, the Calumet Street viaduct, and the Main Street bridge. About $4,440,000 has been expended on 4,270,000 man-hours of work. Bid prices did not increase as it was thought might develop; contractors claim to have lost money, but keep on bidding.

B. B. Weber, City Engineer, Oil City, Pa.—Prior to 1929 there was lavish spending in Oil City, hence not many new works have been needed. A recent 25 per cent cut in tax levy has reduced the chances of many improvements. In 1935 the city cooperated with the state and Federal Works Relief on construction of sewers and water lines, grading, drainage and gutters on dirt streets and grading of two athletic fields, extended a municipal garage with WPA labor and laid a stone base and gravel surface on a park drive. The largest project was at the Municipal Airport, where the funds for the material and truck hire were raised by private subscription.

Orville C. Butler, Superintendent, Bureau of Water, Niagara Falls, N. Y.—WPA work has covered a wide field including storm and sanitary sewers, new conduits for police and fire alarm systems, road and park improvements, water-main installations and airport improvements consisting of drains, grading and repairs to runway. The city of Niagara Falls submitted a program to the Federal Government which will cost $1,729,000. An addition to the water-works pumping station and filtration plant is now under construction at a cost of $445,000. This work is under the loan and grant plan as set down by the Federal Government. Later the city, realizing that it could sell its bonds at a lower rate than that charged by the Federal Government, which was 4 per cent, obtained a release from the Federal Government and sold the bonds in the open market at 3 per cent. A sewage-disposal project costing $2,300,000 has been approved by the Federal Government. In this case the city immediately advertised its bonds and sold them on the open market to private interests at a rate of 2.7 per cent and in addition received a premium in excess of $1,000. Mr. Butler pointed out the importance of planning in the public works field and stated that many cities have failed to take advantage of assistance offered by the State or National Government because they were not prepared with plans to carry out the work. In boom times city engineering departments were generally too busy on existing work to develop a future program, but the office and field forces could and should be enlarged at that time to prepare for public works construction in lean years.

William Sydow, Director of Public Service, Miami, Fla.—PWA allotments to October 15, 1935, have amounted to about $20 per capita, based on the permanent population of 127,621 people, which is doubled in winter. Work included laying 10½ miles of cast iron mains with cement joints, enlarging the steam plant at the municipal incinerator to operate booster pumps, eliminating purchase of electric current. Two circular concrete reservoirs were constructed for the water works, particular attention being given to the beautification of the structure with shrubs and flowers. About 2 per cent of the

cost of the job was spent for beautification, which was paid from city funds. In four out of five cases contractors reported loss of money on PWA work. Hospital and harbor projects are now approved, and coming up are applications totaling about $62.50 per capita for additions to the water-works and waterfront facilities. Little success has been experienced in getting money from WPA. At present Miami is experiencing considerable building activity.

Walter Heimbuecher, City Engineer, University City, Mo.—There has been a 5 and 10 per cent tax reduction, resulting in reduced street maintenance funds. Public improvements have been zero for three years, but assessment of benefited property has made possible some recent work, including $15,000 for three district sewers. Work has chiefly been done through FERA. The major project, under FERA, was correction of the channel of River des Peres. A paper street, a link in our major street system, had been dedicated some ten years ago, but the river channel cut the right-of-way and there were no funds available to make a channel relocation. Local ERA labor cleared the right-of-way and straightened the channel. It was found that hand labor on grading of one street violated all economic principles of engineering practice, the cost being 91 cents per cubic yard for handling dirt, 41 cents per cubic yard for truck hire, and 17 cents per cubic yard for supervision, making a total of $1.49 per yard for work which a contractor had offered to do with a power shovel for 35 cents per cubic yard.

Roy L. Phillips, City Engineer, Meadville, Pa.—This city has had the unique experience of increasing its population about 20 per cent in the last few years, owing to the rapid expansion of a zipper fastener plant and the starting of a new rayon plant. The city has had a heavy-industry relief load, however, and unfortunately few pressing public works needs. At the beginning of the depression the city had $150,000 in the bank with which to build a sewage-treatment plant. A total of 37 CWA and RWD work projects with wholly unskilled labor have been completed. A $1,000,000 low-cost housing project involving 203 houses is under way, for many employed in Meadville have to drive as far as 40 miles to work. The City Engineering Department is doing all the engineering work and the contracts are all let; as, if, and when the money is made available by the Federal Government guarantee of mortgage. WPA work has included tree planting, some street construction, a 5 x 6-foot reinforced concrete box sewer. There has been no PWA work, for the 90 per cent relief labor clause has excluded proper bids from reputable contractors.

Relief Labor Works to Establish Credit

George H. Sandenburgh, City Engineer, Ann Arbor, Mich.—Ann Arbor has been active in work relief since 1931. The city has had 132 projects since that time, using as many as 1,000 men on one project. The largest project was the construction of 4 miles of 36-inch reinforced concrete trunk sewer, which was laid at depths ranging from 10 to 50 feet, at an average cost of $15.14 per foot. Experience has shown that at least 90 per cent of relief laborers want to work. Men who had established a credit have come back to work two or three weeks before their credit was used up. They would rather be working than stay at home and do nothing. Since 1931 we have expended $628,653.98 for work relief projects. We figure that at least 80 per cent of the money spent for work relief labor has been turned into useful public improvements. On regular public works, outside of work relief, approximately 30 miles of low-cost bituminous pavements have been built since 1931 at a price of 26 cents per square yard. During this same period, old concrete, asphalt and brick pavements have been surfaced with a bituminous surfacing at a cost of 6 cents per square yard. Michigan cities have little money for public works. Several Michigan cities that have adopted the 15-mill tax limitation are in bad condition, owing to lack of money for necessary street and pavement repairs. PWA and WPA will be their only salvation.

Joseph P. Schwada, City Engineer, Milwaukee, Wis.—Public works were curtailed by a referendum vote in 1933 which reduced the budget. Under PWA a 200-mgd water purification plant is being built at a cost of $4,875,000, which includes a $1,200,000 grant and the sale of $3,675,000 in revenue bonds. The estimated cost of this project before the advent of NRA was $4,600,000. The 4 per cent bonds were sold to the public at a premium. Another PWA project is an addition to the sewage-treatment plant. FERA is responsible for the widening of trunk highways, repaving, and the construction of safety islands, at a total cost of about $200,000. Other work has included curb construction, grading and the cleaning of ditches, totaling 4,689,000 man-hours of work at a total cost of $3,511,000, in which is included some flood control through the removal of a natural rock dam, the stone being used in macadam roads. Approximately $250,000 has been spent on public buildings, and $1,000,000 on sewer construction and cleaning. Other work in the program has included parks and playgrounds, traffic signals, school repairs, fire and police alarm improvements, and engineering resurvey of the business district to relocate and check bench marks, a housing survey and a traffic survey, and a delinquent tax survey, and it is expected that a new Federal housing project calling for 2½ million dollars expenditure will start shortly.

Unusual Unemployment Load

Robert D. MacLean, City Engineer, Niles, Ohio.—In 1929 three of the eight sheet mills in Niles merged and two mills were shut down, throwing 50 per cent of the population out of work. Every person on relief worked for his money. In 1932, the ash streets were repaired, and as there was no money for materials, all streets were merely graded. Under CWA public buildings were painted, a bathhouse constructed, a football field graded, and two concrete bleachers erected. Under WPA sixteen projects were submitted and thirty more followed, totaling $474,000. These will give 600 men one year's work and include storm sewers, water-line extensions, park improvement projects, installation of electric meter boxes, fire-alarm signals, sidewalks and comfort stations. Under PWA $756,000 is sought for a municipal generating and steam-heating plant, also $500,000 for grade eliminations.

H. F. Alexander, City Engineer, Lorain, Ohio.—No bonds were issued in 1932 and 1933; then $65,000 in bonds was issued in 1934, and $80,535 in bonds in 1935. All maturing bonds in 1933 and 1934 were paid with interest. Street maintenance has been normal, but interstate trucks have caused considerable damage because of overweight. The state and county have repaved 16,028 square yards on the main street, and the city in 1935 has done considerable retread work and cold patch and oil and slag treatment. Plans are ready for a 19,000-square-yard concrete paving project, which may be increased 31,000 square yards as a city, county, state project. A 54-inch diameter sewer 2,520 feet in length has been built in shale varying from 7 to 17 feet in depth. Work is expected to begin soon on storm sewers totaling 13,618 feet in length, varying from 12 to 60 feet in diameter; also, a sanitary sewer 15 inches in diameter and 3,775 feet in length. Enough projects have been submitted on Form 301 (detailed) to employ 670 men for 6 months. On Form 306 (preliminary) projects to the amount of $1,247,000 have been submitted. Many delinquent water users have worked on the laying of 6- to 12-inch diameter water lines. In general the work has been divided into city work with city supervision, paid for by the city, and has covered street work and water mains. The Federal projects have included sewer and park improvements.

New Methods on City Work

Morgan D. Hayes, City Engineer, Rochester, N. Y. (reported by Henry L. Howe, Mechanical and Electrical Engineer, Division of Engineering, Rochester, N. Y.)—There has been little public improvement work other than that financed by the Federal Government, which has included PWA, NRM, CWA and TERA projects. New practices in city work have included the proportioning of concrete by weight with designed mixes and placing with vibration and the use of plywood forms. NRM paving projects have been done by the N. Y. State Highway Division and the City Engineers' plans. Asphalt paving has been laid with transverse expansion and contraction joints in the base. The curbs are set after the base is complete. On the city work, non-skid plant-mixed hot and cold asphalt paving mixtures have been used. Under TERA some sewer work has been done by the use of well points. On bridge construction, interlocking steel sheet piling of the single-wall type was used for cofferdams for river work. The WPA and TERA future program totals $24,000,000, of

which $8,000,000 is for 100 miles of street work with penetration macadam and the resurfacing of brick streets by the re-use of brick.

The program also calls for sewer construction, the construction of repair shops, a municipal garage, storage building, and administration buildings, hangar and garage and runway extensions of the airport. There have been 4,500 men on TERA work, and 12,000 will be put to work on WPA. The PWA program now under way includes the construction of a high school, a library, sewage works, and a bridge, totaling $3,500,000, with a 30 per cent grant. Future work calls for the construction of a central fire headquarters, deepening the Genesee River channel and improvements to the water supply, the construction of an incinerator, a central fire-alarm building and four schools. This will be done on a 45 per cent grant basis, total cost of the new projects amounting to about $2,500,000. All of these have been approved with the exception of the incinerator and the central fire-alarm building.

Walter E. Deuchler, Consulting Municipal Engineer, Aurora, Ill.—Most Illinois cities had no program or plans for public works construction at the time PWA came in. The attractive financing offered by PWA and the need for reemployment created a new interest in and demand for public improvements. Owing to large reduction in assessed valuations, most cities were bonded to the limit, and projects requiring general obligation bonds for collateral could not be financed through PWA. The water revenue bond law, and in 1933 the sewer-rental law, made possible water and sewer projects. The Aurora water-works program included the construction of a 1½-million-gallon elevated steel tank and a 4,000,000-gallon concrete reservoir for fire protection, the driving of deep wells, the construction of large feeder mains, centralized pumping with electric operation and a gas-engine standby replacing a steam plant, saving approximately $25,000 per year, or enough to pay the interest and principal charges on the entire project, which cost $445,000. This work would not have been done if PWA had not made it possible and demonstrated the savings which could be made. Costs were not found above normal work outside of PWA. Mr. Deuchler feels that future work depends on the extension of PWA and the tax-resisting feeling of the citizenry, as well as on bond limitations.

Refuse Collection

At the luncheon session on October 14, Harrison P. Eddy, Jr., President, American Society of Municipal Engineers, spoke on "American Participation in the Second International Congress on Public Cleansing."

Mr. Eddy called attention to the remarkable cleanliness of German cities, to the marked difference in character of German and North American refuse, and to the low cost of labor in Germany. The wages per hour are about 20 cents in Germany and England and 50 cents in the United States. The vehicles are built for combined collection, and only one container, called a "dust bin," is used in the home. Dustless collection is sought by the use of tight vehicles and mechanical unloaders. Three French cities have pneumatic tube collection systems for the carriage of refuse with inlets every 100 to 200 feet. Electric trucks are installed in some cities because of the high cost of gasoline. Some trucks use gas generated from wood or charcoal burned or distilled on the truck, while others are run by compressed methane and propane. German cities are said to be required to buy vehicles of this type, and Italy has followed suit. About 53 per cent of the cities of 5,000 population and over are served by dustless types of vehicles. This service covers about 19,000,000 people and requires the compulsory use of a standard type of container.

The use of refuse as a fertilizer is the older method of disposal, its value being chiefly mechanical for breaking-up heavy soil. Crude dumps are forbidden in England, where controlled tipping is used quite generally. Layers of refuse 6 feet thick are covered with earth or other dry innocuous material. The refuse develops a high temperature quickly in this method of disposal. There is considerable disposal by separation, the screened tailings being burned. There is some direct incineration and a little pulverization and use as a fertilizer, the pulverizing slowing-up fermentation. A few cities dump at sea.

A. E. Roche, President, International Association of Public Works Officials, made some observations on German customs. He reported that the German motor highways have maximum 3- to 4-degree curves and 2 per cent grades. Usually, two 2-lane roadways are built with a 6-foot park area between, planted with shrubs to cut off the glare of approaching headlights.

Public Works Engineering Sessions

The afternoon sessions of Monday were divided into two groups, at the first of which public utility regulation in Cincinnati was discussed by E. D. Gilman, Director, Department of Public Utilities. H. G. Turner, Research Engineer, State College, Pa., presented a paper on the use of anthracite coal as a filtering material. Paul Hansen, Consulting Engineer, Chicago, Ill., spoke on the patent situation in sewage treatment, and E. B. Black, of Black & Veatch, presented a paper on the final disposal of sewage sludge, prepared by his partner, N. T. Veatch, Jr.

At the other simultaneous session, Robert B. Brooks, Consulting Engineer, St. Louis, Mo., spoke on European contributions to municipal cleansing practice; Henry W. Taylor, Consulting Engineer, New York City, spoke on the future of the combined disposal of sewage sludge and garbage, based on the existing plant at Canajoharie, N. Y., and other problems which are now being studied intensively. H. H. Kranz, Engineer of Highways, Cincinnati, described the methods and equipment used in street maintenance in Cincinnati, and Edward H. Gerlach, Superintendent of Garbage Collection and Disposal in Milwaukee, Wis., described Milwaukee's Department of Motor Equipment.

Field Inspection

Several bus loads of delegates made an extensive tour of the city on Tuesday morning, including visits to the municipal asphalt plant, the water works, the city garage, and the new central incinerator, and en route noted a number of municipal street-maintenance activities under way.

At the luncheon following the field inspection, David Cushman Coyle, Consulting Engineer and Economist, New York City, spoke on the topic, "Public Works Financing in the Future." The talk was based on his personal ideas of public works financing entirely from Federal funds produced by practically confiscatory income and inheritance taxes, as outlined in his many writings of the past few years.

Advances in Public Works Engineering Practice

This topic was treated at four concurrent meetings under the sponsorship of the standing committees, which reported the major developments in each field during the past year, an appraisal of trends, and a discussion of those phases of activity in which technical development is most essential. The topics included City and Regional Planning, Airports, Municipal Field Engineering, Street Paving, Highway Sidewalks, Street Lighting, Traffic Control, Water Works, Public Utilities, Sewerage and Sanitation, Street Cleaning, and Refuse Collection and Disposal.

Following this, business meetings of the two organizations were held separately, at which officers were elected for the coming year, as follows: American Society of Municipal Engineers—President, George B. Gascoigne, Cleveland, Ohio; First Vice-President, Thomas Buckley, Philadelphia, Pa.; Second Vice-President, Guy Brown, St. Louis, Mo.; Third Vice-President, Henry L. Howe, Rochester, N. Y.; National Treasurer, Roy L. Phillips, Meadville, Pa. The new officers of the International Association of Public Works Officials are: President, Mark B. Owen, Dearborn, Mich.; First Vice-President, J. Eugene Root, Cincinnati, Ohio; Second Vice-President, John S. Flockhart, Newark, N. J.; Third Vice-President, F. T. Paul, Minneapolis, Minn. The resignation of Donald C. Stone, Executive Director of the Joint Secre-

tariat, was accepted at this meeting, and Frank W. Herring, Assistant Director, was elected to fill the vacancy.

Annual Banquet

On behalf of the Committee on Veterans Awards, P. L. Brockway, Wichita, Kans., presented Veterans Awards to three men from Philadelphia, each of whom had served more than 40 years continuously in the public works of that city. These men were W. H. H. Ogden, Jr., W. C. Reeder and Joseph C. Barnard.

H. M. Waite, Director of the Cincinnati Employment Center, Chairman and Toastmaster, then introduced C. A. Dykstra, City Manager of Cincinnati, who spoke on the topic, "The Revolution in Public Works."

Mr. Dykstra called attention to the fact that since 1933, one-fifth of the population of the United States has been dependent on the other four-fifths for base necessities; and since 1933, some of the most ardent anti's have become the greatest advocates of the dole. Mr. Dykstra said that he had been against public works earlier because (1) local taxes could not finance them, (2) they were a sad lesson in over-financing, and (3) public works should be well planned and financed by money not taken from other operating funds. He raised the questions, "Are public works an investment or a device for spending? Are they worth what they cost when they cannot take up the entire burden of unemployment?" The PWA has been a pulmotor for local public works.

The new attitude toward public works has been brought about by (1) the aceptance by the Federal Government of the responsibility for part of the cost, (2) the use of public works to reduce unemployment, (3) borrowing to finance grants to encourage public works, (4) Federal inspection and approval, and (5) man-hours of work as a criterion rather than political expediency.

Unfortunately, local work has become entirely governed by Federal procedure, and it has tended to develop a favored class of relief workers to be hired while skilled workers normally employed have been excluded from participation in public works projects stimulated by Federal assistance.

As an example of the lack of uniformity in awarding the strictly relief monies under CWA, ERA, and now WPA, a community can secure money to paint a school inside and out, but it can't use any Federal WPA money to maintain a road, because maintenance is not a capital investment.

Mr. Dykstra brought out that if the aim of a public works project is useful, it is logical to use the type of men who are accustomed to this kind of work instead of merely using unemployed men and creating unemployment among the skilled groups. He feels that the regulations cause all kinds of trouble and permit no flexibility. Centralization heretofore has been a brake in all endeavors to speed up public works financed by the Federal Government, but it is hoped that the present decentralization program will expedite allotments.

Looking Ahead at Public Works

The Wednesday morning program contained a series of five-minute summaries of the reports of the Standing Committees, and then two excellent papers in the city planning field: the first by Alfred Bettman, President, American Society of Planning Officials of Cincinnati, Ohio, on "City Planner-City Engineer Relationships," and the second, "Population Characteristics and Public Works Activities in the Future," by L. C. Segoe, City Planning Consultant, Cincinnati, Ohio.

Mr. Segoe showed that the methods we have used in determining future populations in order to properly plan public works do not hold at the present time. The slowing-up of population growth by the stoppage of immigration and the drop in the birth rate have made great changes. The birth rate has dropped more in the last four years than was anticipated in the next 50 years. The accelerated movement to the cities has now reversed, so that people are leaving the cities and moving to rural communities. Mr. Segoe brought out that these changes in population growths within 30 years will reduce the number of children up to 14 years to 80 per cent of the 1930 figure, a slight increase in the number of individuals between the ages of 15 and 39, an increase of 50 per cent in the population between 40 and 64 years of age, and double the number of people over 65 years. Sanitation and preventive medicine have been two great contributors to the increased number of individuals in the older age groups. These changes will result in the need of more cultural structures such as music halls and art museums, and the construction of fewer schools in the future. There will also be a need for more old-age homes.

A Discussion of the Federal Works Program—Panel Discussion and Clinic

The closing session of the Public Works Congress will not be reported in detail, but it probably contributed more of value to the immediate and future prosecution of public works than all that preceded it. First, H. M. Waite, Director, Cincinnati Employment Center, catechised a specially selected panel consisting of: Corrington Gill, Assistant Administrator, Works Progress Administration; Col. E. W. Clark, Executive Assistant, Public Works Administration; Charles M. Reppert, Chief Engineer, Department of Public Works, Pittsburgh, Pa.; Ezra Whitman, Consulting Engineer, Baltimore, Md.; and Clifford Ham, Director of Field Service, American Municipal Association. The questions propounded by Mr. Waite were aimed to furnish a background for a later intensive "quizzing" of the group of administrators and department heads representing PWA and WPA. These men, direct from Washington, had been in attendance at the Public Works Congress for the two previous days and had sat in many conferences with public officials, most of whom expressed their appreciation in no uncertain words, gladly admitting that many misunderstandings had been corrected and that their work had been expedited.

George B. Sowers, Consulting Engineer, Cleveland, Ohio, presided at the Works Program Clinic, whose physicians and interns were bombarded with the widest variety of queries on how, why, when and where projects would be created, approved, financed and completed.

The 1935 Public Works Congress closed at 5 P. M., Wednesday, October 16, with a better understanding between the public works officials of our cities and the Public Works and Works Progress administrators of our Federal Government.

Public Works Exposition

A well-diversified exhibit of equipment and materials used extensively in the public works field was held in the Netherland-Plaza Hotel during the 1935 Public Works Congress. The exhibits included the following:

International Salt Co., Scranton, Pa., showed diagrams of stabilization with rock salt and had an artist who made remarkable pictures with tinted salt; Barco Mfg. Co., Chicago, Ill., exhibited the Barco hammer and tamper and Barco flexible joints; American Rolling Mill Co., Middletown, Ohio, displayed Armco spiral welded pipe, paved invert culvert pipe with an asbestos fused coat to improve the adhesion of the coating, a Multiplate culvert, helical perforated pipe made from galvanized strip by a continuous process with a locked joint, and also spiral weld pipe with Bitumastic lining; Chicago Pump Co., Chicago, Ill., displayed a Comminutor, a Scru-Peller centrifugal pump for sludge, a non-clogging raw sewage pump, and a Tru-Test sewage sampler; Concrete Surfacing Machinery Co., Cincinnati, Ohio, exhibited its line of Berg cleaning tools for removing scale from structural steel, bridges and water tanks; The Portland Cement Association, Chicago, Ill., had an attractive exhibit of photographs and literature; Hercules Motors Corp., Canton, Ohio, displayed its 6-cylinder diesel engine; National Colortype Co., Inc., Bellevue, Ky., showed various types of enameled warning and traffic signs; Gohi Culvert Mfrs. Assn., Newport, Ky., exhibited Gohi culvert pipe and perforated culvert pipe; Jaeger Machine Co., Columbus, Ohio, displayed Lakewood neon flashers and a Jaeger portable sure-prime pump; Koehring Co., Milwaukee, Wis., had an exhibit of photographs and literature on the Mud Jack pump; Asphalt Institute, New York City, had a display of photographs of asphalt streets and highways and its standard specifications for asphalt pavements; National Paving Brick Assn., Washington, D. C., displayed different types of paving brick and its literature; Elgin Corp., Chicago, Ill., had a panel of photographs of the Elgin trio, the pick-up sweeper, the Auto Eductor, and the Garbage Getter.

The Public Works Administration filled the mezzanine gallery with a fine display of photographs of PWA projects. The city of Cincinnati put on one of the most remarkable exhibits of models which have been displayed at any municipal convention.

Slum Clearance in Birmingham, Alabama

THERE are 22 blighted areas in Birmingham, in which approximately 20,000 families, mostly Negroes, representing at least 70,000 individuals, are living. Approximately 15,000 buildings are involved, of which about 50 per cent are obsolete and should be abolished. These facts have been secured by the Federal Government, which assigned to Dr. J. D. Dowling, City and County Health Officer, and his associates the task of collecting and tabulating data on the location and intensity of the principal factors involved—congestion of people and abnormally located houses, communicable diseases, the eight major crimes, child delinquency, location of domestic animals, and bad sanitary conditions.

In a constructive address recently delivered before the Birmingham Real Estate Board by W. D. Moore, President of the American Cast Iron Pipe Co., of Birmingham, the actual conditions were forcefully presented, in full outline, with many details showing the great need for slum clearance and regeneration. Blighted area No. 6, which has approximately twice its share of the eight major crimes in the Birmingham district, is used as a vivid illustration—not only of the appalling situation, but also of what may be done with Federal Government aid and city, county and state cooperation. The No. 6 area has become a demonstration unit.

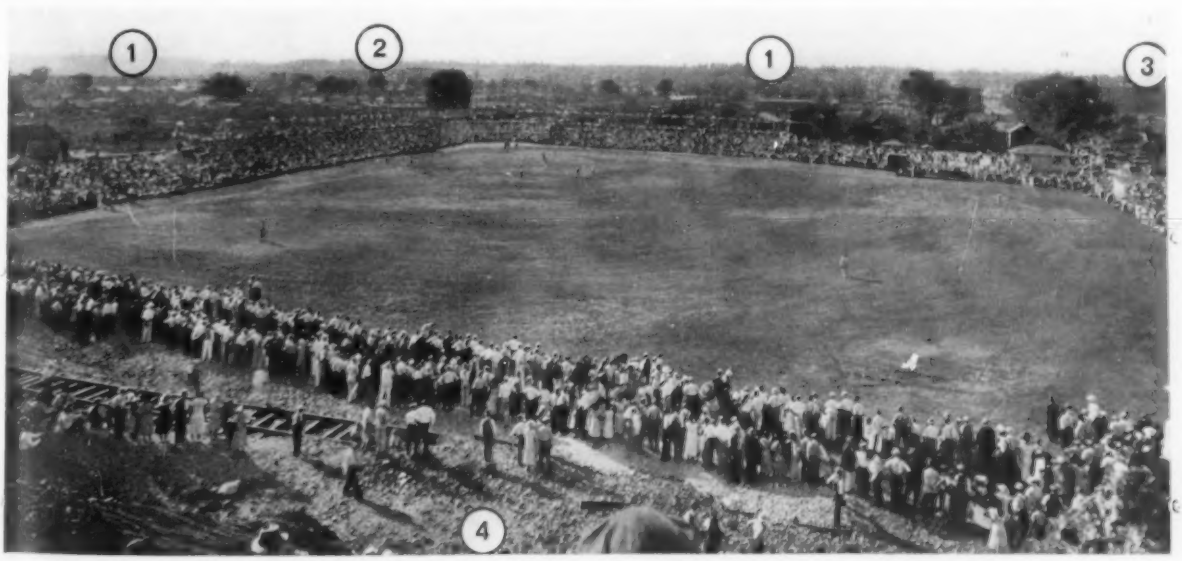
About a year and a half ago a group of Birmingham industrialists became interested in work of this kind and organized a non-profit corporation known as the Birmingham Industrial Recreation Association, the purpose of which is the sponsoring of projects to improve living conditions, and a more constructive use of leisure time among industrial workers. With 125 relief workers per day during 15 months, and with donations of material and property and money, this organization has constructed, almost in the center of district No. 6, one of the finest athletic fields in the city. The two photographs herewith reproduced indicate the enormous value of continuing and extending the work of reconditioning this area.

Typically, the water-works system needs to be re-worked and extended, and an entirely new gas distribution system installed to serve this area. The sanitary sewer system should be enlarged and extended, and a complete new storm sewer, including three miles of trunk-line sewers, constructed. Improved streets with curbs, gutters and sidewalks are needed for 50 blocks of property. The reconditioning of 800 family unit houses and the building of 300 new houses are involved.

Team work has proved effective, for the industrial group has had the complete cooperation of the city and county governments and the city, county and state relief agencies, in presenting a demonstration of what can be accomplished by definitely taking part in support of the Government's slum clearance program.

SLAG PILE OVERLOOKING SLOSS FIELD

Some of the overflow crowd that used this slag pile of the Sloss-Sheffield Steel & Iron Co., on Labor Day, 1934, when there were 12,000 people at the field



VIEW OF SLOSS FIELD TAKEN FROM TOP OF SLAG PILE SHOWN IN OTHER PHOTOGRAPH

The numbers designate: (1) Negro community; (2) plant of American Cast Iron Pipe Company; (3) Negro Grammar School; (4) Sloss slag pile

Highlights of a Joint Sewage Works Convention

New England and New York State Sewage Works Associations Hold Successful Meeting at Schenectady, N. Y.

THE first joint meeting of district or state sewage works associations was held in Schenectady, N. Y., October 4 and 5, 1935, where the New England Sewage Works Association and the New York State Sewage Works Association met at the Hotel Van Curler, with a total of 237 members and guests in attendance. This joint meeting brought out a larger attendance than either association had had at any of its separate meetings.

The program opened Thursday evening, October 3, with inspections of the manufacturers' exhibits in the solarium and Terrace Room of the hotel. The exhibitors and their exhibits included:

Lord & Burnham, Irvington, N. Y., pictures of greenhouses and glass covers for sludge drying beds; American Brass Co., Waterbury, Conn., copper and brass products for use in sewage treatment plants; Carborundum Co., Niagara Falls, N. Y., porous plates and tubes for air diffusers, refractory material for incinerators, underdrain plates for sand and coal filters, and refractory laboratory ware; Hardinge Company, York, Pa., pictures of mechanical equipment for sewage treatment; Norton Co., Worcester, Mass., porous plates and tubes for air diffusion, and abrasive materials; Link-Belt Co., Philadelphia, Pa., photographs and models of mechanical equipment for sewage treatment; General Electric Co., Schenectady, N. Y., a kitchen waste unit in operation demonstrating the grinding of garbage in the home and its dispesal via the waste pipe; Wailes-Dove-Hermiston Co., New York City, bitumastic-lined pipe and coatings for sewage structures; Pardee Engineering Co., Long Island City, N. Y., photographs of Pardee chlorinators; Pittsburgh Equitable Meter Co., Pittsburgh, Pa., cut-open samples of Nordstrom lubricated plug-valves, a glass-cased demonstration gas meter, models of hot and cold water meters, and the Emco bell joint clamp; Chain Belt Co., Milwaukee, Wis., panels of photographs of Rex sanitation equipment; W. & L. E. Gurley, Troy, N. Y., Gurley gages and recording devices; Robinson-Clay Products Co., New York, tile sewer pipe; Wallace & Tiernan, Newark, N. J., a visible vacuum feed chlorinator, a ferric chloride feeder, and a dry chemical feeder for the application of chemicals in sewage and water-works practice; L. A. Weston, Adams, Mass., Weston's gasket and form for sewer pipe joints of cement; Turbine Sewer Machine Co., Milwaukee, Wis., a standard adjustable turbine sewer cleaner, self-propelling ferret turbines for cutting obstructions out of sewers, stoppage drags and accessories; Merrimac Chemical Co., Everett, Mass., Ferrisul, an anhydrous ferric sulfate for sewage coagulation, and Mertec, a chlorinated rubber lacquer which is corrosion-resistant; U. S. Pipe and Foundry Co., Burlington, N. J., a motion picture of the manufacture of Super de Lavaud pipe; Inertol Co., New York, attractive and unique models of a swimming pool and a sewage treatment plant treated with the colored concrete paints developed by this company; The Dorr Co., New York, photographs of Dorr mechanical equipment for sewage treatment; Royer Foundry & Machine Co., Kingston, Pa., a Royer sludge disintegrator; Oliver United Filters, New York, photographs and literature on vacuum sludge filters; Mine Safety Appliances Co., Pittsburgh, Pa., various types of carbon monoxide detectors and indicators, a two-man combination hose mask for use in areas deficient in oxygen, and other safety devices; Chicago Pump Co., Chicago, Ill., a full-size Comminutor, a Scru-Peller primary sludge pump impeller, a Tru-Test sewage sampler, and a non-clogging pump.

The Friday morning session was held in Rice Hall in the auditorium of the Research Laboratory Building of the General Electric Co., and started with a demonstration in this "House of Magic" under the direction of Larry A. Hawkins, Executive Engineer of the General Electric Research Laboratory, whose name became well known to radio fans during the Floyd Gibbons broadcasts of this company. Following this, the business meetings of both sewage works associations were held in the same auditorium with remarkable speed. The delegates returned to the Hotel Van Curler for a luncheon, after which they were addressed briefly by Hon. Henry C. Fagal, Mayor of Schenectady.

The afternoon session included the following unusually interesting and instructive papers: "The Disposal of Sewage Solids," by F. W. Mohlman, Chief Chemist, The Sanitary District of Chicago, Ill.; "Cost Records for Maintenance and Operation of the Worcester Sewage System and Sewage Treatment Plant," by John H. Brooks, Superintendent of Sewers, Worcester, Mass.; "Fundamentals of Biochemical Oxygen Demand in Sewage Treatment and Stream Purification," by Prof. Earle B. Phelps, Department of Sanitary Science, Columbia University; and "Unique Features of the Walden Sewage Treatment Plant," by Newell L. Nussbaumer, consulting engineer, Buffalo, N. Y.

In the evening an informal dinner, entertainment and dance was held in the banquet hall of the convention hotel, with dinner music by the Schenectady High School String Ensemble; a most entertaining specially written radio broadcast by Dr. Paul B. Brooks, Deputy Commissioner of Health, New York State Department of Health; and a highly entertaining demonstration of art by an alleged Greenwich Village artist, Monsewer Dappertino, with A. F. Dappert, of the New York State Department of Health, as Manager. It was reported that the crayon used by the artist was 50-50 Schenectady sludge and activated carbon. A cabaret floor show and dancing concluded the evening's entertainment.

Despite late hours on Friday, the entire convention arose early Saturday morning for 7:30 A.M. movies in the convention hall through the courtesy of the New York State Department of Health, with C. C. Agar, of the Department, furnishing a running comment on the films as

well as acting the part of an energetic inspector visiting the various sewage treatment plants depicted. Shortly after 8 o'clock, the Sunrise Breakfast was held, followed by the round table discussion which has featured previous New York State Association conventions.

Morris M. Cohn presented an entertaining description of the Schenectady sewage treatment plant, and in the absence of Henry W. Taylor, who was to have described the Canajoharie sewage treatment plant and refuse incinerator, pamphlets describing the plant were distributed.

With the entire convention accommodated in visiting automobiles, the caravan of sixty-five cars drove to the Schenectady sewage treatment plant, where an opportunity was offered to inspect the plant, including the decorative evergreens in concrete urns, a Royer sludge disintegrator in action, and a demonstration plant of an Oliver United filter. From here, the auto caravan drove some 40 miles west over New York State Route 5S to Canajoharie, stopping at the Hotel Wagner, where a delightful luncheon was served by the Beechnut Packing Co., and a brief address was given by Hon. Harry V. Bush, Mayor of Canajoharie. Following the luncheon, the convention group inspected the Beechnut packing plant, the Art Gallery and Library, and then drove to the sewage treatment plant and incinerator. Delegates examining the plant with particular care noted that the recording chart on the venturi meter showed an unusual load on the sewage treatment plant between 1 and 2 P.M., which corresponded quite accurately with the arrival of the auto caravan.

The new officers of the New England Sewage Works Association are: President, Guy E. Griffin, Greenwich, Conn.; Vice-President, Stephen M. Gage, Providence, R. I.; Secretary-Treasurer, F. W. Gilcreas, State Department of Health, Albany, N. Y.; Directors, John H. Brooks, Worcester, Mass., and LeRoy W. Van Kleeck, Hartford, Conn. The officers of the New York State Sewage Works Association are: President, Morris M. Cohn, Schenectady, N. Y.; Vice-President, Robert C. Wheeler, Albany, N. Y.; Secretary-Treasurer, Arthur S. Bedell, Albany, N. Y.

Water Mains Cleaned at Woodstock, Illinois, Before Softened Water Entered System

By **JOHN A. FULKMAN**
Hydraulic Engineer, Consoer, Townsend, Older & Quinlan, Consulting Engineers, Chicago, Ill.

PRIOR to the installation of the new water-softening plant at Woodstock, Ill., considerable difficulty had been experienced with red and black water; therefore, it was decided to clean the existing cast iron water mains prior to the introduction of the softened water. Woodstock is situated 50 miles northwest of Chicago and has a population of about 5,500. It is the county-seat of McHenry County, a farming district, and has a domestic, commercial and industrial water consumption of 526,000 gallons per day and a maximum pumpage of about 800,000 gallons.

The water supply is secured from two gravel-packed wells, each 200 feet deep. These wells were drilled in 1926. Recent tests show that 1,000 gallons per minute can be pumped from one, and 900 gallons per minute from the other, to the ground surface. The recent dry years do not seem to have affected the production of the wells. The additional head required for pumping water to the softening plant reduces the quantity pumped from the wells, with the existing deep-well pumps, to 850 and 750 gallons per minute respectively. The wells are about 150 feet apart. The total hardness of the Woodstock water is 360 ppm prior to softening, and 100 ppm after softening.

The Water-Main Cleaning Program

All cast iron water lines in the city, with the exception of those laid within the last few years, were cleaned. There were 84,083 feet of 4-, 6- and 8-inch mains cleaned by the National Water Main Cleaning Co. The 4- and 6-inch lines were cleaned by dragging a sheet metal scraping tool through the line with a ⅝-inch diameter cable and a winch. The ⅝-inch cable was dragged by a smaller cable through the section of main to be cleaned. This small cable was inserted in the pipe by attaching it to a stiff rubber cone, of the diameter of the pipe, and forcing the rubber cone through the pipe by water pressure.

The scraping tool consisted of stiff sheet metal prongs about 1½ inches wide and bent in such shape as to spring a sharp scraping edge against the inside of the pipe. Many of these prongs were lashed together to form a unit of the scraping tool. The scraping edges of the prongs were lapped and staggered, and one placed behind another so as to scrape all surfaces of the inside of the pipe several times. Several such scraping units were tied together with short lengths of steel cable, so that one unit would drag behind another when cleaning the pipe.

The cleaning tool for the larger lines was dragged or driven through the pipe, and the cleaning was done by scraping and not by any revolving cutting tool. The majority of the 8-inch lines were cleaned by driving the tools through the pipe by city water pressure. In all cases the city water pressure was turned on back of the tool, and the cleanings were washed ahead of the tool to the outlet end of the section of pipe being cleaned. The pipe was cleaned in sections of a few hundred to 2,000 feet. After a section of main had been cleaned, it was sterilized with one ounce of chloride of lime per 500 gallons of water before being placed back in service.

Deposits Removed

The material removed was mostly fine, and similar to the solids removed when flushing rusty mains, but black instead of brown. There was little scale on the pipe before cleaning, but all around the pipe there was a coating of

black, slimy material which was not removed by flushing. This material may have been iron deposits blackened by the presence of hydrogen sulphide in the water.

The benefits of cleaning were the elimination of black and rusty water, and an increase in pressures and quantities of water at various points on the distribution system. Before the mains were cleaned, it required 70 pounds pressure at the pumping station to keep the standpipe full. The standpipe is located about a mile from the pumping station. After cleaning the mains, it required only 65 pounds pressure at the pumping station to keep the standpipe full.

Pressure and flow tests as recorded in the accompanying table were taken at fire hydrants at various points on the distribution system before and after cleaning the mains. At seven typical points on the distribution system the average flow at fire hydrants was 9 per cent greater after cleaning the mains. This was effected with a 5-pound lower pressure at the pumping station. This 5-pound saving in pressure will result in an annual saving in pumping of at least $200.

Test	Dia.	Pressure at Pump Station Pounds Per Square Inch Before Cleaning	Pressure at Pump Station Pounds Per Square Inch After Cleaning	Flow from Hydrant Gallons Per Minute Before Cleaning	Flow from Hydrant Gallons Per Minute After Cleaning
1. Dean St.	4	67	56	834	988
2. Jefferson	4	65	55	1,375	1,500
3. Calhoun	4	68	62	417	494
4. McHenry	4	58	47	1,180	1,292
5. Wheeler	4	62	53	825	914
6. Dacy	4	67	51	850	952
7. Bonton	8	53	45	1,900	1,900

Dynamite in Sewers

By **A. B. BACKHERMS**
Sewerage Engineer, Department of Public Service, Akron, Ohio

WOULD you rest easy if you knew that a quantity of dynamite was stored on the premises? The answer is undoubtedly, "No." Yet many persons create and promote, through carelessness or ignorance, a condition equally hazardous. Read the following statement by the National Board of Fire Underwriters.

"Mixed with air, oil or gasoline vapor constitutes one of the most powerful explosives known. Even small quantities mixed with air form an explosive gas; one pint of the liquid makes explosive 200 cubic feet of air; one gallon develops approximately the same explosive energy as 83 sticks of 40 per cent dynamite! Benzine and naphtha are equally destructive."

Gasoline, a most useful fuel, the power that drives motor cars, is one of the most powerful explosives in the world. Few people appreciate the real power in this fuel, and particularly the destructive power. Large quantities of crankcase drainings entering the public sewers contain gasoline in amounts sufficient to vaporize in the sewer, thereby creating a combustible gas capable of ready ignition and explosion.

Keep Explosive Liquids Out of Sewers

The discharge into city sewers of oils, gasoline, naphtha and other dry-cleaning liquids, whether by large or small industries, garages, gas stations or housewives, is prohibited by ordinance, but it takes something more than an ordinance to eliminate this constant potential danger. Appreciation of the explosion hazard, and the full cooperation of the public, is our best safeguard.

From a report of investigations made by the U. S. Bureau of Mines, the following are the principal gases which may be found in manholes:

Gas	*Source*
Ammonia, explosive	Refrigerating plants
Benzol, explosive	Motor vehicles, storage tanks
Carbon dioxide, non-explosive	Products of combustion, sewer gas
Carbon monoxide, explosive	Manufactured fuel gas, flue gas, products of combustion, exhaust gases from motors
Ethane, explosive	Natural gas, manufactured fuel gas
Gasoline, explosive	Motor vehicles, storage tanks
Hydrogen, explosive	Artificial fuel gases, electrolysis of water
Hydrogen sulphide, explosive	Sewer gas, coal gas
Methane, explosive	Natural gas, manufactured gas, sewer gas
Sulphur dioxide, non-explosive	Burning insulation
Unsaturated hydrocarbons, explosive	Manufactured fuel gases

It will be noted that three of the gases come from sewage itself, one of which is non-explosive. The other two are products of stale sewage or decomposition of the organic matter. The probability of a so-called sewer-gas explosion in Akron or any other city is very remote, because the sewers generally are laid on grades which provide sufficient velocity to prevent deposition of solids; and, further, numerous manholes with perforated covers are built to provide ventilation. Therefore, foreign gases are generally the contributing cause of sewer explosions. Again, looking over the above list, we find benzol, carbon monoxide, ethane, gasoline, methane and unsaturated hydrocarbon, which are associated with motor vehicles, manufactured fuel and natural gas.

The utilities are alert to the problem, and daily their men can be seen on the streets with special testing equipment checking for gas leaks, or trained "snifters" on their knees over a manhole, using the odor test.

Some garages save all crankcase oil and wastes, which are later refined and can be re-used. Waste oils, gasoline and cleaning fluids should never be discharged into sewers, but should be disposed of by burial or distribution on the ground to permit evaporation. Large quantities of oil can be used in laying the dust on dirt and cinder streets.

Warnings for Skeptics

For those skeptics who do not believe in warnings, let us look into the past and see what history records. In 1917, there occurred in Akron the earth-rocking explosion in North Howard Street, near Spring Street. In April, 1920, the Mill and High Street explosion, resulting in a fire which partly destroyed the Buckeye Building. In 1927, the West Market Street - Howard Street explosion, which blew a manhole cover over the top of a nearby building. In October, 1929, there was the explosion which raised the covers from the manholes over the storm sewer in Cole Avenue, Sweitzer Avenue and Stanton Avenue, and wrecked the emergency hospital of the Miller Rubber Co. A similar train of events can be recorded for almost every city in the United States.

Let these disastrous events serve as a warning. Keep all inflammable liquids out of the sewer.

Ozone Solves Color, Odor and Taste Problem in Hobart Plant

By THEODORE O. FERKINHOFF
Manager, Hobart Light and Water Company

HOBART, INDIANA, is a city of approximately 6,500 population located about 40 miles from the Chicago Loop. It is chiefly residential and has a rather picturesque lake, Lake George, within a stone's throw of its main four corners.

Hobart's water supply is taken from Lake George, which has been formed by the damming of Deep River, a sluggish, meandering stream of high bacterial count and of turbidity ranging from 25 to 1,250. The supply is pumped into the water plant by low-service pumps into the agitators, just ahead of which is the alum feed. From the agitators the water flows by gravity to the 400,000-gallon settling basin, and from there to the million-gallon-per-day sand filters. Lime is introduced in the line between the settling basin and the filters. From the clear well the water is lifted to the ozonators, and after aeration it flows to a 5,000-gallon surge tank, to be pumped to the system or the 200,000-gallon overhead tower. When necessary, chlorine is introduced on the suction side of the high-service pumps.

The order of handling and treatment of the water at Hobart is: intake, low-service pumps, alum, agitator, settling basin, lime, filter, ozonator, aerator, chlorinator, high-service pump to mains.

The most interesting thing in connection with the Hobart plant is its ozonation system. Ozonation has been used in Europe for a good many years as a means of water sterilization, notably in Russia and France. J. M. Daily, who designed the ozonators in Hobart, served in the French Army and while in France after the war became interested in the ozonators there. He developed the idea of building a much more compact machine than those in France, and one was erected in the town of Long Beach, Ind. The idea proved so successful at Long Beach that later a still more compact machine was built at Hobart.

The Odor Problem

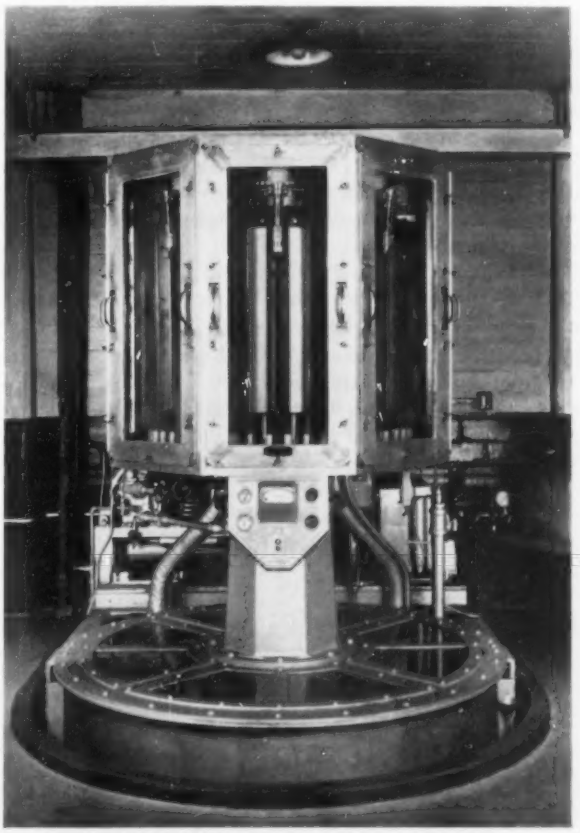
The raw water at Hobart, drawn from the slow-moving Deep River, presented a much greater problem than that of the water drawn from Lake Michigan, the Long Beach source of supply. However, the ozonators at Hobart have proved most successful. Prior to the installation of the ozonators the finished water had a most unpleasant vegetable taste and an undesirable odor, along with a color index of approximately 25. The present water furnished through the ozonators has no undesirable taste and no odor, and the color ranges from 0 to 2. The ozonation also has a beneficial germicidal effect. Chlorine is used to conform with the requirements of the Indiana State Board of Health, to an amount of about five pounds per million gallons pumped. The B-coli counts per cc on 37° agar in the raw and treated water are: raw 1,000; filtered 8; ozonated 0; chlorinated (at tap) 0.

The Ozonators

Ozonation consists of the introduction of ozone, which is a blue gas known chemically as three atoms of oxygen. It is produced by passing high-voltage electricity through a stream of dry air, dehydration of the air being accomplished by refrigeration in Hobart.

The ozonators, which were installed in the existing filter building early in 1932, are supplied at a voltage of 208, and this is stepped up to ratios of 9, 9½ or 10, or approximately 18,720, 19,760 or 20,800 volts, depending on the tap setting of the transformers. Complete equipment required consists of the following main pieces for each unit, of which Hobart has two complete units:

1 25-kva transformer 208/220-18,720, etc.
1 10-hp electric pump
1 ozone generator and cabinet (Hobart, million-gallon capacity)
1 circulating tank and aerator (combined)
1 dehydrating refrigerator and air cabinet



ONE OF THE OZONATOR UNITS AT THE HOBART, IND., PLANT

Electric power increase because of ozonation is the chief incremental expense in the direct operation. One kilowatt-hour is needed for about 1,000 gallons of water ozonated. An increase of 2½ cents per 1,000 gallons pumped will be necessary if it is desired to completely depreciate the equipment over a twenty-year period. Another 2½ cents per 1,000 gallons will be needed for interest on investment at 5 per cent per year; about 1 cent per 1,000 gallons will be necessary for maintenance of equipment. These figures are based on a 60-million-gallon pumpage per year. Of course, the figures will decrease with increase in volume of pumpage. Also the number of gallons ozonated per kilowatt-hour will vary with the quality of the water to be treated. In Hobart, experimentation with other methods of clarifying taste, color and odor were found less successful than ozone.

Month and Year	Pumpage Gallons	Total Kwh Metered to Plant	Approximate Kwh Used by Ozone Equipment not metered, calculated from estimations)	Kwh Used for Other Purpose (low service, high service pumps, agitator's, station lighting, chemical machines, etc.)	Gallons Ozonated per Kwh Used by Ozone Equipment
July, 1934	6,744,000	14,979	5,809	9,170	1,160
August, 1934	5,016,000	14,384	6,435	7,949	780
September, 1934	4,008,000	11,778	5,268	6,510	760
October, 1934	4,080,000	12,982	6,320	6,662	650
November, 1934	4,188,000	9,189	3,640	5,549	1,150
December, 1934	3,840,000	8,498	3,280	5,218	1,170
January, 1935	3,708,000	7,797	3,340	4,457	1,110
February, 1935	3,384,000	7,000	2,720	4,280	1,250
March, 1935	3,816,000	7,690	3,020	4,670	1,270
April, 1935	3,720,000	7,689	2,860	4,829	1,300
May, 1935	3,840 000	8,889	3,640	5,249	1,050
June, 1935	3,972,000	9,689	4,420	5,269	900
12 months totals	50,316,000	120,564	50,752	69,812	999
Hobart, Indiana, population 1930					5,787
Estimated 1935					6,500
Water customers as of June 30, 1935 (all metered except hydrants)					820
Miles of mains					17.74 miles

Same Motor Equipment Used for Flushing in Summer and Snow-Plowing in Winter

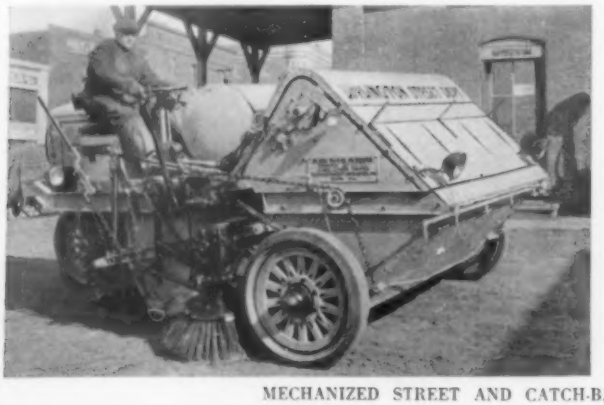
By GEORGE C. STANLEY
City Engineer and Superintendent of Streets, Burlington, Vt.

STREET-CLEANING operations in Burlington, Vt., are not seasonal, for we believe that our streets must be cleaned of all accumulations of dirt and refuse throughout the spring, summer and fall, and the snows of northern Vermont must be removed if motor traffic is to have the free use of streets in winter. The streets are cleaned by sweeping with an Elgin motor-driven pick-up sweeper, purchased in 1923 and used constantly every year since. During the last two or three years, as elsewhere, we have necessarily used men on unemployment relief in much of the city work. Some of these men have done hand cleaning, especially in the spring, when the dirt is heavier, and in the fall when the leaves fill the gutters and tend to clog catch-basins.

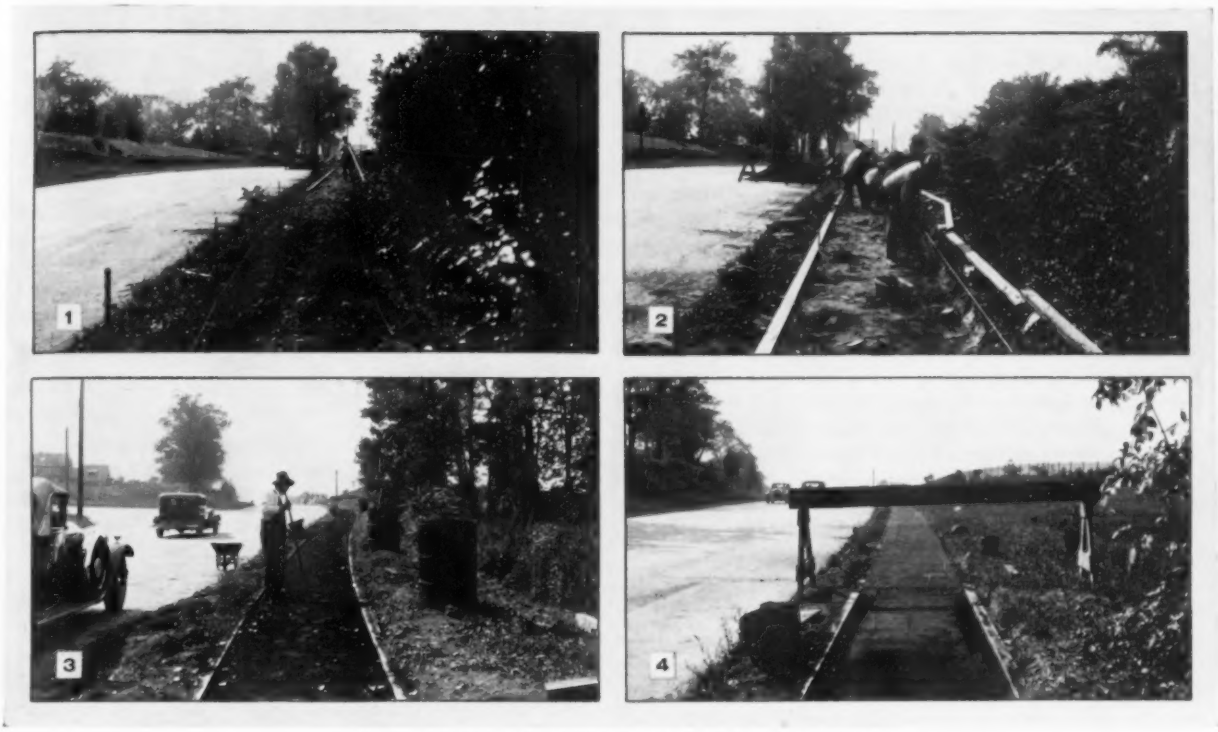
The catch-basins are cleaned with an Elgin Auto Eductor, which was purchased in 1925. We find this method to be a great saving in expense over the old hand method and of course much more sanitary. The Auto Eductor is also used for flushing and sprinkling streets when necessary in summer, and for plowing streets during the winter when equipped with a large Ross snow-plow. We also use the Eductor for cleaning cesspools in the section of the city which has no sewer system, thus making another dual service for our equipment.

The Parked-Car Nuisance

While we have not done away entirely with the parked-car nuisance, we have a system of painting the restricted areas which has proved very successful in minimizing the difficulties of street cleaning among parked automobiles. The curb space where parking is restricted is painted with orange paint and "No Parking" signs are placed on the pavement. In addition, the parking areas are painted either longitudinally or diagonally to the curb, depending upon the width of street, with white street-marking paint, and on all the electric light poles and standards along the curb signs are placed giving the time limit for parking in each block.



MECHANIZED STREET AND CATCH-BASIN CLEANING IN BURLINGTON, VT.



BUILDING HIGHWAY SIDEWALKS IN WHITE PLAINS, N. Y.
1. Staking and preparing the subgrade. 2. Setting the wooden side forms for asphalt pavement. 3. Raking the cinder base. 4. The end of a day's run of asphalt on cinder base

Increasing Safety on the Highways by Building Sidewalks

By **JAMES T. A. McCANN**
Assistant City Engineer, White Plains, N. Y.

THE increasing number of fatalities due to collision of motor vehicles with pedestrians has sharply focused the attention of public and engineers on the need for such further road improvement as will ameliorate this unfortunate situation. One great hazard most easily possible of remedy is the use of the same path by motor vehicles and pedestrians, which makes for continual invitation to disaster. Separation can be easily and cheaply accomplished by the construction of proper sidewalks at a short distance from the highway pavement itself. Furthermore, such construction lends itself particularly well to the utilization of relief labor, since practically all the operations are by hand work. For several years the city of White Plains has been extending sidewalks along a number of the outlying roads and streets, a procedure which has been much appreciated by the public.

A number of things are to be borne in mind in connection with the design and construction of such sidewalks as contrasted with a highway. In the first place, the load on a sidewalk is very light, and the principal requirements are to have a surface which is smooth and resilient for easy walking, and well drained so as to resist natural forces, such as moisture and frost. Thus only a relatively thin wearing course is required, provided a stable subgrade is prepared, which implies a bituminous surface of some kind placed upon a foundation of gravel, stone, cinders or slag, as may be most cheaply available. The selection of the variety of wearing course will depend upon local conditions, but it is believed that in cities, and adjacent thereto, the use of a pre-mixed material is most desirable because of ease in handling and better control of the work. In addition, there are certain advantages under the conditions of cooperative projects where funds from several sources are involved, because of fewer items for purchase. In White Plains there is available an ample supply of good-quality cinders, and these materials are used for foundation. There are also a number of nearby asphalt plants which can furnish high-quality pre-mixed materials in any quantities desired and at reasonable prices. Accordingly, the combination of a cinder base and an asphalt pre-mixed top has been chosen for a large part of such work.

Also, with this design it is possible to better organize the local labor into several gangs so that work proceeds more or less by general rule, with a minimum of delay. Twelve men have been found to be the best number for a single working unit, one of the men being foreman in charge of the job.

Construction

Where the road has a curb, as is often the case in the outlying parts of the city, a minimum offset distance back from the curb of 3 feet to the edge of the sidewalk is desirable. The usual sidewalk width is 4 feet, which is adequate for most conditions of foot traffic encountered. The sidewalk is staked out first, using iron pins and string, the sod then being removed, followed by grading to a suitable profile. Where large trees are encountered which are desirable for preservation, the sidewalk is carried in back of the trees, in which case a rubblestone wall is built around the tree, and a little heavier grading work is then required to prepare the sidewalk foundation.

The side forms are next constructed, consisting of 2 x 4 timbers spiked inside 2 x 4 stakes driven at intervals of three feet. The 4-inch side is horizontal and is set for the top of the asphalt surface. The bottom side of the forms is thus some 4 inches above the subgrade, which permits the cinder base to be extended under them and thus give lateral support to the wearing course after the forms are removed. The forms are supported between stakes by placing old brick as may be needed.

Upon the prepared subgrade good-quality cinders are then spread to a depth of 5 inches loose. Where water is readily available from adjacent brooks or pipe lines, the cinders are sprinkled with a hose, otherwise they are wetted down with water which is hauled in barrels and applied with buckets by hand. The cinders are then rolled to a compacted thickness of approximately 4 inches and up to the botttom of the forms. A template board, consisting of a piece of 2 x 4 lumber with nails driven 1 inch apart and extending 1¾ inches, is then drawn by hand along the top of the forms. The nails scratch the cinders, indicating any high or low places, which are then remedied by hand raking and tamping.

Wearing Course

The wearing course, which consists of cold-laid asphaltic concrete, is placed to a depth of 2½ inches loose, and rolled to approximately 1¾ inches compacted. The loose depth is checked by the use of a second template, made from a 2 x 4 piece of lumber with two ¾-inch blocks attached. It is placed with the blocks on top of the forms and, being ¾-inch above them, is used behind the men spreading the asphalt to guide them and thus insure subsequent compression by the roller to the top of the forms. The final rolling extends over the side forms and firmly consolidates base and top. Where a coarse open pre-mix is used for the wearing surface, the voids should be filled with a sand having a thin coating of asphalt so as to be readily broomed into the voids, thus making a watertight surface, as well as presenting a good appearance.

There is a yield of approximately 25 linear feet, 4 feet wide, per ton of asphalt top course, and of approximately 20 linear feet per cubic yard of the cinder base. Under usual working conditions, a gang of 12 men can prepare subgrade, set forms, place base and top, and finish 150 linear feet of 4-foot width sidewalk per day.

Curbing and Side Forms

A comment in regard to curbing and side forms may be of interest. It is realized that in a number of cases side curbs of concrete or stone are required, but in view of the light traffic on sidewalks it is felt that this is often an unnecessary expense and, furthermore, may be positively detrimental in holding water under the sidewalk surface instead of letting it flow out freely at either side in case of such entry, particularly at the bottom of hills, where under the very best of conditions water will gather under a pavement if confined. Stone curb is used when necessary, which is usually only at driveway entrances.

As a rule, the wooden side forms are removed after two or three days, carrying them ahead to be used again, and the depression is filled with earth firmly tamped in place by hand. If required, additional earth is spread to complete the shoulders to grade, and to a slope of about 1 inch per foot toward the roadway. This is followed by seeding the shoulders to grass, so that in a short while a firm sod is established. In no instance has there been any breaking of the edges of the sidewalk.

Procedure

By following the methods outlined above, a sidewalk is obtained which is free from glare, blends readily with adjacent surroundings, is low in first cost, requires practically no maintenance, and by reason of its black color is soon free from ice and snow in the winter time. In handling this particular class of work at the present time, the following procedure has been found advantageous: Bids are taken as follows—cinders delivered adjacent to the work at so much per cubic yard, cold-laid asphaltic concrete delivered at the job at so much per ton, lumber for side forms (where required new) delivered on the job at so much per thousand feet, one 5-ton narrow (3-foot width) tandem roller at so much per day, including the operator. All other work is done by hand labor, and the necessary smaller tools are furnished by the city. Such a procedure simplifies accounting practice and eliminates delay, and has been found to be most satisfactory under usual conditions in obtaining the lowest possible cost. It is believed that a great many cities will find the construction of sidewalks one of the desirable methods of ultilizing public works funds in more efficiently employing relief labor, and at the same time having a finished work of lasting benefit to the people at large.

Contributions of the Emergencies to Recreation Progress

RECREATION leaders have been given not only thousands more people for whom to provide leisure time occupation, but also considerable sums of money from Federal sources with which to create facilities and provide teachers and leaders. In some cities, the available park and other recreation areas have been set forward in amount equivalent to what in normal times could have been expected only by 1945. In San Francisco, we have been able to clean up all unused city property and turn it into recreation areas. Our facilities have been greatly increased over what would have been expected in normal times.

By reason of the assistance of Government funds and numerous workers assigned to us by relief rolls we have been able to experiment, make studies and surveys, and teach people new hobbies. The attendance at our drama activities has been as great in six months as in the entire year of 1934. We have been able to prepare complete engineering plans for all our facilities. In 1934 $687,365.50 was expended on playgrounds:

Our permanent gains are: better understanding by the public of the importance of recreation, better and more facilities; and a larger conception of a larger recreation program in the municipality.

JOSEPHINE RANDALL,
Superintendent of Recreation, San Francisco, Calif.; discussion leader, National Recreation Association Congress, Chicago, October 3, 1935.

Shelby Earns $19,214 After All Expenses, Including Taxes

By **E. W. QUIGGLE**
General Manager of Public Utilities, Shelby, Ohio

The Shelby electric-light plant is one of the oldest municipal plants in the state, dating from 1890. There's a new plant now, but it stands on the old site that cost $200. The original building cost $947. In 1929 a 1,000-kw. bleeder turbine was installed, and in 1934 an improved 1,500-kw. of the same type was added to help carry the steam-heating and electric loads.

ON May 9-10, 1935, the city of Shelby, population 6,200, in the north central part of Ohio, opened its new municipal light plant. Actually it is an expansion, but the new building and equipment are of such proportions as literally to represent a new station.

In 1928 a severe sleet storm ruined the distribution system, which was of course rebuilt, and then it was decided to modernize. In 1929 an Elliott 1,000-kw condensing turbine-generator unit was installed. This has operated continuously until a few weeks ago, when inspection showed that only minor repairs were necessary. It is a bleeder unit, to furnish steam for industrial heating. It has been changed over for high-pressure steam conditions.

In 1931 a movement was started to sell the plant to a public utility; but the people voted to keep it, and authorized a bond issue of $80,000 for rebuilding. Early in 1932, the Froehlich & Emery Engineering Co. was retained, and plans were prepared for a 500-hp 240-pound boiler with auxiliaries. A boiler house was erected, and a second boiler purchased.

Soon after the completion of the boiler house, a 1,500-kw Elliott bleeder turbine was financed with a PWA loan and grant, together with surface condenser, forced-draft cooling tower, two superheaters, and a new building addition. The new turbine is shown in place in the photograph below.

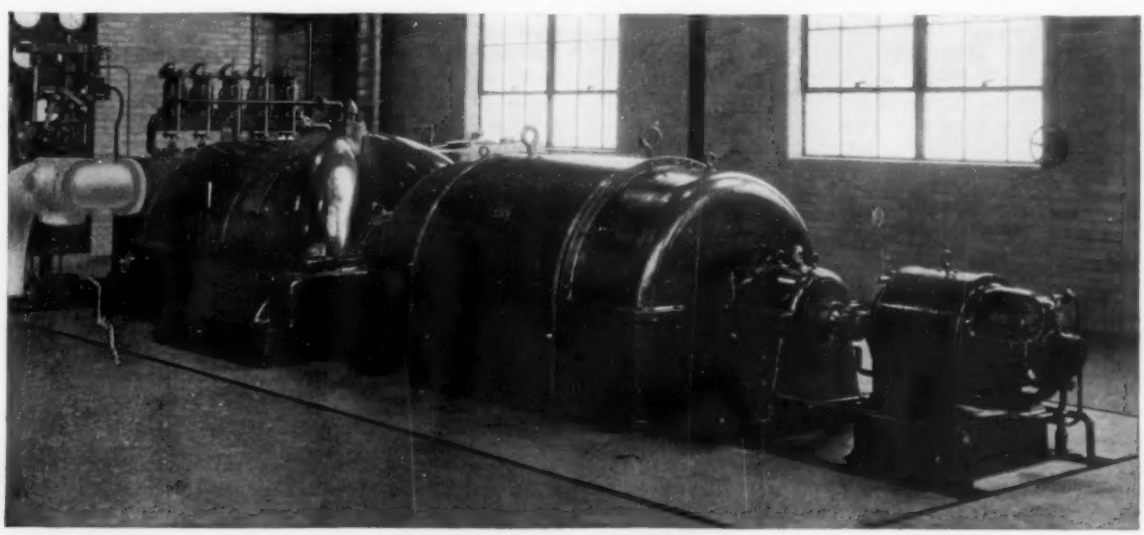
The New Turbine

The new turbine has refinements which a few years ago were found only on the larger machines. One of these is the admission-valve arrangement: five small valves, each carrying a fractional part of the load. As the load increases, more valves open to admit more steam. This gives good operating efficiency at light load, which is desirable in a plant where the load is light after midnight and on Sundays. The turbine operates on 225-pound, 600-gree steam, and generates at 2,300 volts.

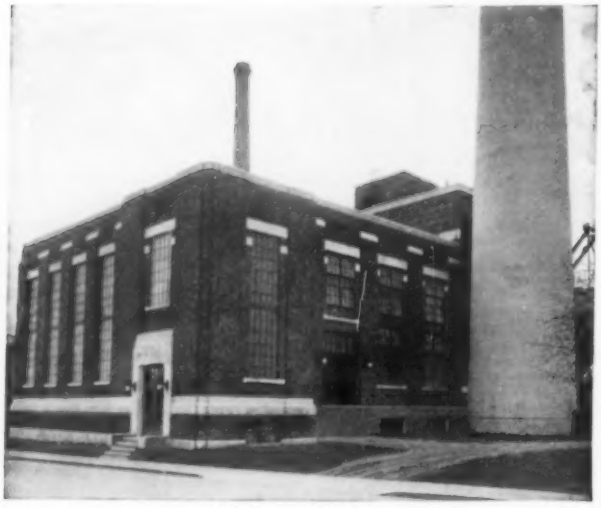
The Bailey Meter Co. combustion control is automatic and dependable. It is set for a given steam pressure, and as the demand increases, the pressure drops, the control speeds up the stoker, and opens the forced-draft fan damper and the stack damper just enough to take care of the increased demand for steam and to maintain the required pressure. Savings amount to 12 per cent over operation by manual control.

Coal is dumped from cars to unloading pit, where it is delivered by a conveyor to an elevator which deposits it in an overhead bunker. From the bunker it is delivered to each boiler by a weigh larry. Daily records are kept of coal burned, and steam generated.

Ashes are dumped from the ash hoppers to a small ash car, going from there to an ash bunker by means of a skip-hoist. Except for removal of ashes from hopper, no



NEWEST TURBINE IN SHELBY'S REHABILITATED PLANT



MAKES A NET INCOME OF $30,000 UP

manual labor is required in the complete handling of coal and ashes. Water for boiler feed and cooling-tower make-up is pumped from a creek. As it enters the plant, it is softened and filtered.

The new station makes a pleasing appearance. The outside is built of tapestry brick trimmed with artificial stone. The interior of the turbine room is finished in salt-glazed brick. The combined turbine and boiler room measures 108 x 64 feet, and the commodious basement under the turbine room is 18½ feet deep.

It is quite difficult to obtain the total costs of our plant previous to 1933. In 1933 our total requirement for bond retirement was $10,430. Bond retirement requirements for 1934 were $20,990. This increase was due to the fact that the first payment of $80,000 bonds, issued in 1932 for the construction of our first boiler-plant addition, became payable. Our tax rate is 17 mills.

The plant and distribution system are valued at $600,000 and if owned by a private corporation would have to pay in the neighborhood of $10,000 per year taxes. But the city gains considerably more, for the plant furnishes without cost street lights and light and power for all other city enterprises, which in the year 1934, at our regular rates, amounted to $17,240.

If the city was served by a public utility, the chances are there would not be a power plant located in Shelby—only a distribution system; and ours is valued at $160,000. Consequently, the city's income from taxes if served by a private utility would be less than $3,000.

Hence, for the year 1934 total costs, including the hypothetical tax of $10,200 plus bond interest of $20,990, giving total expenses of $108,410, set against a total income of $110,384 plus $17,240 for city power, a total income of $127,624, shows a net profit of $19,214.

REVENUE FROM ELECTRICITY AND STEAM, OPERATING AND MAINTENANCE COSTS, AND THE DIFFERENCE

	1930	1931	1932	1933	1934
Revenue	$128,674	$128,987	$125,361	$109,910*	$110,384
Expenses, Operation					
Payroll	31,651	33,366	28,825	20,794	33,567
Fuel	40,357	32,301	28,749	28,598	31,754
Supplies	5,770	7,175	7,567	8,790	9,620
Total	77,778	72,842	65,141	58,182	74,941
Expenses, Maintenance					
Materials	10,088	9,500	5,769	5,390	2,279
Federal tax			638	1,535	
Expenses, total	87,866	82,342	71,548	65,107	77,220
Net income	40,808	46,645	53,813	44,804*	33,164

* Rates reduced 12½ per cent July 1, 1933.

Machine Accounting and Check-Signing at Binghamton

By **EVERETTE E. ALLEN**
Comptroller, Binghamton, N. Y.

THE accounting machines we use are an adaptation of a 17-bank bank-machine made by the Burroughs Adding Machine Co. These machines are so arranged that certain movements are automatic and help to eliminate the possibility of an error by the operator. We use one in our office for general city accounting work and do all posting on it. Two other machines are in use in the City Hospital and Education Department offices, where the detail accounts for these municipal activities are kept, the comptroller's office carrying only the control accounts.

Our billing machines are Burroughs and Underwood Elliott Fisher makes and are used primarily not for billing but for writing vouchers and warrants. The tax-billing is done by typewriters, but this consumes only about two weeks' time in the month of December. We use a Monroe semi-automatic calculator to compute tax figures and also in checking payrolls.

We use a check protector and check signer made by the Todd Co. Our accounting system, which we rate very efficient, is probably different from any other in existence. Our voucher jacket, warrants and checks are all made in this office by one operation on the typewriter, the first two mentioned being carbon copies of the check. It is necessary for the comptroller or deputy to sign every warrant which authorizes the treasurer to disburse the money. This warrant and check is then forwarded to the treasurer's office, where the two check machines are ranged side by side. After the approval of the treasurer, the checks are fed into the Protectograph on an endless belt, where the correct amount is printed in by the machine. As it is thrown out by this machine by an endless belt, it is fed directly into a similar arrangement, whereby it passes through the signing machine and emerges with the comptroller's and treasurer's signatures printed one above the other at the corner of the check. The blank checks are kept in the vault of the comptroller, and the two machines mentioned are kept in the treasurer's vault and in his custody when not in use. This of course would prevent any fraudulent use of the checks or machines. As a further safeguard, duplicates of all bank statements are forwarded to the office of the comptroller each month. These machines were installed in 1932 and have saved much labor over signing checks by hand.

A full list of the business machines used by this city comprises three for accounting, two for billing, check signer and check protector, four hand-operated adding machines and three electric adding machines, four calculators, two mimeographing machines, dictation machine, and a stamping machine for mailing.

Unpaved Streets Surfaced by Relief Labor

A Cooperative Plan in Birmingham, Alabama

By **LEWEY ROBINSON**
Commissioner of Public Works

THE officials and citizens of Birmingham believe that the funds which are being expended through relief on the surfacing of Birmingham's large mileage of unpaved streets are accomplishing a worth-while purpose, and exceptional results in street surfacing have been accomplished at extremely low cost.

Early Relief Work

During the work under CWA in 1933 and 1934, some street work was done by relief labor. This consisted of removing, cleaning and relaying several blocks of brick and granite block. The old base was leveled up by the addition of furnace sand, and the brick and block were relaid to a smooth surface and rolled. Slag sand was broomed into the joints. The joints in the granite block streets were filled with asphalt pitch, and the relaid brick were hand sprayed with heavy Tarvia squeegeed into the joints and lightly covered with slag chips broomed to a uniform spread and lightly rolled. Excellent results were obtained in this work.

Cooperative Relief Projects

Early last spring the cooperative relief street work started. The officers of Forest Hill Cemetery, located at the head of Sixteenth Street in Birmingham, did not like the condition of the street approach, from Third Avenue to the main entrance. This street was unpaved and had a slag surface, rough and dusty. The officers submitted a plan to the Street Superintendent, offering to furnish the Tarvia and slag cover if the city would furnish the relief labor, equipment and supervision. The property along this street could not stand any of the cost. This project was completed with an excellent riding surface at very low cost.

Resurfacing Widely Needed

Birmingham has some 200 miles of streets in residential sections, surfaced with slag or chert. Curbs and gutters have been constructed on most of these streets. Modest homes are located on them, and under the light traffic conditions, and with low property values, high-cost pavements are not justified or possible. It did not take long

PREPARING THIRTEENTH AVENUE, NORTH, FOR RESURFACING AS PART OF WORK-RELIEF PROGRAM IN BIRMINGHAM, ALABAMA

Insets: left, applying the bituminous material on 53rd Street; right, 54th Street as completed

for these people to find out about the Forest Hill Cemetery approach work, and property owners along several blocks petitioned the city to work out a cooperative plan for the similar surfacing of their street, and the big cooperative relief plan for low-cost street surfacing was on.

One factor which has materially reduced the cost and furnished a large opportunity to use hand labor is that the city of Birmingham controls several old slag dumps. This furnishes slag for leveling up and strengthening the old streets, and covering material for the Tarvia. The city of Birmingham, through its Public Works Department, furnishes the supervision, trucks, rollers and other tools. The property owner pays for only the Tarvia as applied by The Barrett Company.

Type of Work

Two types of street surfacing are used. The streets that have adequate bases and good cross-section are broomed clean with hand brooms, and light Tarvia at the rate of ¼-gallon per square yard is applied as a prime. This penetrates into the base and sets up by the following day, when an application of heavy tar is made, at the rate of about ½-gallon per square yard. This grade of tar is applied hot. It is then covered with a coarse slag chip, screened out by hand relief labor, broomed to an even distribution, and rolled. A seal coat of the same heavy tar is then applied, using about ¼-gallon per square yard, covered with fine chips, broomed and rolled. The amount of Tarvia used ranges from 1 to 1½ gallons per square yard, according to the condition of the base and the thickness of surface desired.

The other type of surface built consists of leveling up the old street with a coarse screened slag, properly shaped, and compacted by rolling. Instead of a prime coat, an application of heavy Tarvia is given, penetrating the slag. This is covered with chips and rolled. Another application of tar is then made, covered with coarse chips, broomed and rolled. The seal coat is then applied and covered with fine chips, broomed and rolled. Before the seal coat is applied, all loose slag chips are broomed up and saved.

Program Increasing

Streets surfaced in this manner have an excellent appearance and good riding qualities and are very suitable for residential sections. Dust and washing-away of the street surface are eliminated.

There are six relief crews engaged in this work at present. Each crew works 65 men daily, and as these men are not permitted to work a full week, it is seen that double this number of men are at work on this cooperative street-surfacing program. Crews will probably be organized to take care of the increasing demand for the street surfacing. To date, about 100 blocks have been surfaced, and petitions are on hand, with property owners' funds available, for a like amount. The average cost to the owner of a 50-foot lot on a street 20 feet wide is about $7 to $10. We are now resurfacing about one mile per week, employing about 400 men.

The True Cost of Public Works

"*THE true cost to the nation of public works done in time of large-scale unemployment is nothing.*" This was one of several provocative statements in a talk by David Cushman Coyle, at last month's joint conference of the American Society of Municipal Engineers and International Association of Public Works Officials.

In the early days of the depression, "self-liquidation" was generally assumed to be a desirable, if not an essential, feature of a local project meriting Federal aid. But Mr. Coyle, in his magazine articles and public addresses, has repeatedly shown the fallacy of this assumption. As he said in his Cincinnati talk:

"The essential purpose is to provide employment in such a way that the money paid out will be a net addition to the buying market on which business depends. If the program is to be effective, it must not set up conditions that will cause further business depression.

"A toll-bridge is arranged to take money from the passing traveler, who is in general none other than the consumer on whom business depends for a living. The money paid out on the construction is a direct addition to the buying power of the consumer; the tolls are a subtraction of the original sum, with interest. One cancels the other."

Mr. Coyle recognizes, of course, the value, from other points of view, of public works that pay their own way:

"There are some kinds of public work that must be at least partly self-liquidating, such as water works, electric plants, and housing. Water, electricity and housing cannot be given away to the consumer without disrupting existing services and dislocating the business world. Works of these types should therefore be regarded mainly from the point of view of their social usefulness, not as recovery measures. In so far as Federal grants or subsidies are possible, and in so far as the works do not compete with existing business, they can be counted into the recovery program.

"The simple principle of non-self-liquidation may be complicated by special factors in special cases. There are, I believe, valid reasons for encouraging municipal electric plants that will compete with private companies and will tend to force a general reduction of rates. The result may be that the private companies will make more money on lower rates than they did before. The general rule remains, however, that competing with business is not usually a way to make business more profitable."

"The true cost of public work done in depression is often misunderstood. During a period of intense business activity such as that which occurred during the World War, no public work could be done without drawing men away from other work. The true cost to the nation of any public work was seen to be measured by the goods and services that had to be sacrificed because the men who might have produced them were drawn off to the public work instead. Under such conditions the dollar cost of a bridge or a dam represented quite closely its physical cost in sacrificed values. In depression the same principle applies, but the conclusion is different. When we build a bridge now, what goods would the men have produced if they had not been working on the bridge? None. What would the steel have been made into if it had not been used for the bridge? Nothing. What physical wealth must the nation go without in order to have the bridge? None. . . ."

Electrical Bookkeeping and Accounting

IN the early days of the depression Ed Wynn said that business was looking up because it was lying on its back. It is not on its feet yet, but the stupendous 32nd National Business Show held in New York City the entire week of October 14-19 gives a penetrating glimpse of what, drunk or sober, sick or well, American Business is. For here are the machines, appliances and paraphernalia by which industry, commerce, transportation, finance and government keep track of their transactions.

Whether the figures be red or black they must be recorded. Certain industries, otherwise poor customers, have purchased, rented and installed more of these mechanical thinkers during the lean years than they did in prosperity. They have done this for the double positive purpose of keeping a running check on exactly where they stand and to maintain a more nearly continuous contact with customers and prospects by frequent dunning and soliciting. Municipal governments have been one of these industries to look with greater favor than ever before on modern, labor-saving, tireless, mercilessly accurate, and productive business machines.

Consider the city of Rochester, N. Y., with its some 400 appliances ranging from 20 accounting machines to 32 pieces of photographic equipment. Take a round dozen of the major types, totaling 337 machines—186 or 55 per cent of them were installed during the depression:

	Since 1930	Before 1930
Addressing	6	9
Adding	49	46
Accounting-bookkeeping	12	9
Billing	11	2
Calculating	17	25
Check writer-signer	3	5
Mimeograph	6	4
Multigraph	11	7
Ditto	1	3
Dictaphone	48	2
Cameras	3	11
Cash registers	19	25
TOTAL	186	151

Here is a customer of the first magnitude. A mere suggestion of what these figures mean in dollars is given by two of the lesser items. The 11 multigraph machines cost $5,165; the 7 older ones cost $2,245. The city of Rochester is a leader in the use of dictating equipment. Its purchases of both dictating and transcribing machines were as follows: 2 in 1929; 2 in 1930; 6 in 1931; 23 in 1933; 17 in 1934.

Nor does this city feel that it is as yet adequately equipped to do business on a modern scale. Says Malcolm C. Brown, senior city accountant: "The trend as indicated by the number of business machines and their purchase dates is distinctly a step in the right direction. The old pen-and-ink methods still continue in some cases where machine installations would be from all indications the better set-up. This is noticeable in the accounting for tax receipts."

Multiply Rochester's arsenal of business appliances by 213 and you have the figures for all towns and cities equipped on this basis—some 70,000 appliances worth many million dollars. This is the immediate prospect of the municipal market.

In 1934 the city of Newark purchased $45,000 worth of tax accounting equipment, and has continued in 1935 to mechanize and modernize several other offices of the Department of Revenue and Finance. Prorated, this would mean about $8,000,000 for all the towns.

Where is the old fear of displacing workers? Rochester has not displaced them. Newark has not displaced them. The Department of Purchase of New York City has been buying new business machines, and recently asked for ninety additional workers. Those sixteen dictating machines of Rochester are accompanied by three shaving machines and eleven transcribing machines, thus seeming to require fifteen persons to service the dictators. It seems safe to believe that the four stenographers of the expansive days—if, indeed, every dictator had his exclusive stenographer—were not fired, while three shavers were hired.

The fact is that, properly used, the business machine tends to create new jobs by getting more and better work performed and on the desk of the official. In order to make the most of the new information placed at his disposal, he frequently must hire people to do the things indicated by the new or prompter facts now at his disposal.

Where is the fear of political consequences from spending taxpayers' money to keep track of their payment of taxes? By the old method, for example, it would be impossible to permit installment payment of taxes, as some municipalities are doing. But by the use of modern machines and forms, the tremendous increase in clerical work caused by two to twelve payments per taxpayer can be performed speedily and at a cost commensurate with prompter and more complete payment of taxes, at added convenience to the payer. One Newark department can buy $45,000 worth of equipment because the man who orders it believes in collecting all the money he can; knows that this is the road to a lower tax rate and higher city credit. It is a policy dictated by conscientious regard for office, desire for popular approval won on results, and an ambition for advancement gained on the basis of achievement in the office to which he was elected. The story is told by him on page 50 of the July issue of this magazine.

Practically every political body has a purchasing office, and the routine is similar in each. Invoices are the originating records, and making these out is a calculating-machine job. When these have been checked, they are entered to an Accounts Payable record, a bookkeeping machine job. Then there is the matter of stock records, kept by a bookkeeping machine that records stock received and stock issued. Time comes for payment and the work of the check writing and signing machines. The amounts must be entered on the Accounts Payable record, another bookkeeping job.

One of the eternal jobs is the making of copies of a memo or a call for bids. Ten exhibitors sell duplicating machines. A typewriter can make 6 to 10 carbon copies. A new machine on the market makes 10 to 100 copies for 5 cents per 100 without cutting a stencil. Another machine copies by a chemical process from carbons only and can make 200 prints.

Then come the machines requiring a stencil, that

make hundreds of copies, thousands of copies; and the printing and lithographing machines making any number. Another method of copying is the camera, which, on a small motion-picture film that can be filed in a few cubic inches of space, will take shot after shot of checks, documents and records, and can always be referred to without wear and danger to the original records. Essex County, N. J., for example, uses this method.

Copying is not always a mere matter of making a draft on the typewriter and reproducing this as a stencil. Sometimes it is desired to get into a certain space a great many more data than the ordinary typewriter can accomplish. During the last 2½ years a special typewriter has been developed that uses 312 styles of type faces, from 4-point to 14-point. It is said that a job that would have cost the New York *City Record* $11,800 as straight type setting was performed by this condensation method for $2,550. The Federal Government has 300 of these machines; New York City, Rochester, Chicago, Kansas City, San Francisco, Los Angeles, use them.

Bills, statements, notices, letters, reports, having been duplicated, are folded, addressed, stamped and mailed out, frequently to permanent lists such as taxpayers and water users. Here is where the addressing machine is of great value. Since Newark's large installation, about thirty towns in New Jersey have done likewise, some using hand-operated machines.

This huge sampling of what the industries of America are using to keep track of their credits and debits is a challenge to government. Can government, which to some extent regulates and universally taxes these properties, perform the function rationally and effectively by any other means than the high-speed, accurate, fact-finding methods used as a matter of course by the industries?

Old Man Beno

By **WILLIAM N. McNAIR, Mayor of Pittsburgh, Pa.**

IF you should be in a port visited by Uncle Sam's fleet and stand around the docks on an evening, you will probably hear a group of sailors come up to a water taxi and say—"Take me out to 'Old Man Beno.'" Back of this is a story.

Many years ago there was a captain on one of the cruisers who was very strict and the boys would come up and say, "Cap, what about a little shore leave?" He would say, "There will be no shore leave." "How about this or how about that?" "There will be no this or that," and so he got the nickname of "Old Beno." The Captain has long since passed on, but the boat is still called "Old Beno."

During my term of office I have discovered that there are many "Old Benos" in the average American city. Somebody comes to town to build a lot of homes. There are one or two locations in that section where such an enterprise would make a profit, but somebody with a piece of paper stands in the way and says there will be no building until you pay me. Another agent comes to town to build a factory—he wants to put a lot of people to work. Before he can do so he must find a certain location near to the railroad, paved streets, good water supply, and all the other elements that will be advantageous in that business. He finds a vacant tract with all these advantages—he also finds "Old Man Beno" sitting there and if he has a price, it eats up all the profits.

In that same city, doctors, lawyers, credit men, brokers, dentists, advertising men and thousands of others engaged in various services which go to make up a civilized community find themselves cramped in their office space. Some financier, after a lot of trouble, arranges to get credit to build a modern office building. Now he meets the real "Old Beno" or big shot—he wants a large ransom before a pick can be put in the ground. He has the one location hundreds of thousands of people pass daily. He values a foot of his ground in the tens of thousands.

A man who has planned all this with a vision of thousands of people getting work, gives up—the toll is too heavy and men who might be employed continue to walk the streets.

Can we get rid of "Old Man Beno?"

Isn't he the man who stands in the way of prosperity?

We hear a great outcry among the people now taken up by men in high places—"Soak the rich."

I should like to change that to "Soak Old Man Beno."

Federal Agencies Establish Central Housing Committee

THE Central Housing Committee, establishment of which was recently authorized by President Roosevelt as an aid to coordination of the diversified activities of Federal agencies concerned with housing, is now functioning. This Committee exercises no administrative authority, but is purely a conference or cooperative organization by means of which, through pooling of housing information and experience, each agency can work more effectively in its own sphere.

Representatives of the following agencies having major interests in housing or housing finance comprise the Committee:

Farm Credit Administration	Public Works Administration
Federal Home Loan Bank Board	RFC Mortgage Company
Federal Housing Administration	Resettlement Administration
National Emergency Council	Treasury Department

The U. S. Information Service, in "Services of the Federal Government to Home Owners and Tenants," says:

"These agencies constitute a small working nucleus. Assisting them are subcommittees which, in addition, represent other agencies having incidental or special interests in housing. These subcommittees deal with such phases of housing and housing finance as: Research and Statistics; Planning and Initiation; Law and Legislation; Procedure and Administration; Appraisal and Purchase; Design and Construction; and Operation and Management.

"The Central Housing Committee, as a coordinating agency, seeks to eliminate or prevent duplications and to avert conflicts in policy or program between any of the housing agencies. In its consideration of housing problems, it has the benefit of studies not only of public but of private agencies and directs its attention to major problems and needs, so that none of importance is overlooked or neglected and each is given appropriate consideration. By this policy the Central Housing Committee will endeavor to develop a consistent national long-range program of housing. There is in the undertaking represented by the Central Housing Committee a spirit of mutual helpfulness on the part of Government officials which should be reflected in better service to the public and a better organized attack upon housing problems."

Efficiency in Garbage Collection and Street Cleaning Service

Better Organization, Standardization and Cost Accounting Improve Service

By S. E. HOUSTON

THROUGH the virtual elimination of lost motion in garbage collection and street cleaning service and in the efficient maintenance of its truck fleet, the city of Jacksonville, Fla., has been able to reduce costs and at the same time to do a remarkably good job. Prior to 1926, Jacksonville used 1- and 1½-ton trucks in its Street Cleaning Department. Owing to constant overloading of these small trucks, with consequent high maintenance and tire expense, it was decided to employ large units for both garbage collection and street cleaning work. The larger trucks saved time on account of the fewer trips necessary because of their great capacity, and also reduced costs because of their ability to stand up under the difficult service.

Definite schedules and carefully laid-out routes also speed up collection service and eliminate the possibility of garbage cans being left for long periods on the curb before being picked up. The Jacksonville climate makes daily collection desirable from a sanitation standpoint, and this is done in all sections of the city, except on Sunday. Downtown streets and arterial highways are serviced at night to avoid the heavy day traffic.

Garbage disposal is by means of two plants in which there are five modern Nye odorless incinerators having a daily capacity of 260 tons. These plants are located so as to shorten hauling distances, thus contributing to greater efficiency and economy.

Organization and Inspection

Direct supervision of the Street Cleaning Department's activities is in the hands of the Superintendent, who maintains all records of truck and equipment operation and maintenance costs, as well as accurate records of the work accomplished by the Department. The Superintendent is a great believer in the value of preventive maintenance in keeping trucks and other equipment operating efficiently and economically. At regular intervals, general inspections of the Department's trucks and other equipment are held. As an incentive to truck drivers and helpers on garbage and street cleaning units, the Commissioner recently offered an award to the driver whose truck was in the best condition from both the mechanical and the cleanliness standpoint. This award, a specially designed gold pin, is kept in the possession of the winning driver until the next inspection, three months later. A driver who wins the decoration three times in succession may keep it permanently. It is felt that incentives of this kind are important factors in building up departmental morale; that such things are responsible for the pride the employees of the Department have in its activities and in their own jobs.

Of the 28 International trucks in the fleet, 7 are employed strictly in street cleaning work and 13 in garbage collection. Two others haul ashes from the garbage disposal plants to the dump. The remaining units are held in reserve for emergency. Garbage-truck drivers act as foremen and are assisted by three helpers. On the Street Cleaning Department trucks, the driver, who is also the foreman, has two helpers.

ONE OF THE NEWEST TRUCKS ADDED TO THE GARBAGE COLLECTION SERVICE IN JACKSONVILLE, FLA.

SCHEDULED LUBRICATION AND INSPECTION IN THE CITY GARAGE, JACKSONVILLE, FLA., SAVES HUNDREDS OF MAINTENANCE DOLLARS ANNUALLY

Lubricating one of the fleet of Street Cleaning Department trucks at the city garage

All except three of the garbage trucks work during the day. The three exceptions are the trucks employed in garbage collection service on through-streets and in the business section at night. A total of 25 men, including the truck crews, are employed in night garbage collection and street cleaning work.

Schedules

All garbage trucks are run on definite schedules; thus it is possible for the Department to locate any unit quickly, so that inquiries as to when refuse will be picked up, and the complaints from householders that arise from time to time, can be handled promptly. Two inspectors, who travel constantly about the city, keep a close check on the work of each truck and call the office regularly for any instructions which they might be required to pass on to truck crews out on routes. This garbage collection system picks up approximately 19,000 cans every 24 hours.

Some Quantity Figures and Costs

Annually, the street sweeping activities include the collection of about 18,000 cubic yards of refuse, and an average area of 22 million square yards of streets swept in a month. Expressed in curb miles of street covered, this means more than 2,000 miles of street swept each month, and since there are approximately 232 miles of paved street in Jacksonville, it is figured that every square foot of it is swept at least nine times every thirty days. Since the paved streets include many types of surface—brick, asphalt, concrete, limerock, shell, and others—various methods, including power sweeping and hand sweeping, must be employed.

The garbage and refuse collection report for a typical 6-month period—January to June, inclusive, 1934—shows that the Department's trucks picked up 34,322,701 pounds of garbage and its carts collected 6,604,225 pounds, and that the incinerators disposed of this material plus 4,601,721 pounds brought in by private trucks. The Department also collected and disposed of 10,984,962 pounds of sweepings in the same period; 10,973,135 pounds of ashes and cans; 20,990,292 pounds of grass, leaves, and brush; 41,422 pounds of stumps; and 123,238 pounds of sand. The total of 48,820.85 tons made a total of 28,405 truck and cart loads of refuse. This gives some idea of the magnitude of keeping a city of Jacksonville's size clean. The total cost of collection and disposal for the period from which these figures were taken was $72,642.46, divided as follows: street cleaning, $19,436.65; garbage collection, $36,941.70; and garbage disposal, $16,264.11. The cost per ton for garbage collection has steadily decreased, and this expense, including wages, was $1.81 for this period as compared to $2.06 per ton in 1929. Of the entire budget, the item of payrolls is by far the greatest, accounting for $64,938.09, or approximately 88 per cent of the Department's total expense.

During the same period the trucks operated by the Department covered 196,980 miles, an average of 32,830 miles a month. Mule-cart mileage for the same period was 3,743, and the three power sweepers traveled 13,194 miles.

Cost Accounting

The automotive expense records of the Department are reported to the City Statistician on the city's "Automobile Expense Account" form, which includes such items as: Car Number, Driver, Tires (cost and labor), Chassis (material and labor), Body (material and labor), Paint (material and labor), Grease (material and labor), Gasoline (gallons and cost), Oil (quarts and cost), Service Labor, Total Labor Cost, Total Material Cost, Total Operating Cost, Speedometer Reading, Miles Run, and Cost per Mile.

The information for this monthly report comes from two sources, namely, the Department itself and the city garage. Gasoline, oil, and tires are carried by the Street Cleaning Department's own stores section. Work done on trucks and other equipment by the city garage is reported monthly to the Department by the garage accountant.

Another report, made up quarterly by the Assistant Superintendent, shows a direct comparison of automotive equipment costs as follows: Car Number, Make, Type (truck, passenger car, or sweeper), Year New, Driver, Speedometer Reading (this is total mileage on unit), Miles Run This Period, Average Cost per Mile Previous Period, Average Cost per Mile This Period, Decrease in Average Cost per Mile, Increase in Average Cost per Mile, Average Cost per Month Previous Period, Average Cost per Month This Period, Decrease in Average Cost per Month, Increase in Average Cost per Month, Average Miles per Gallon. The comparative figures shown on this report are an accurate index of the relative efficiency of the various units in service. From these figures the Department is able to decide quickly which trucks and cars are no longer economical to operate and should be replaced.

In addition to the Superintendent and Assistant Superintendent, the Department employs 124 men, of whom 23 are truck drivers, and 57 are helpers, on garbage and street cleaning trucks. The Department, however, is not entirely motorized, owing to certain local conditions, and as a result there are 10 cart drivers and a stableman listed among the employees. Of the Street Cleaning Department personnel, 83 are white and the remaining 43 colored. With the exception of the crews of two trucks which work in colored areas of the city, all drivers are white, and the majority of them have been in the service of the Department for many years.

All the trucks in the Street Cleaning Department service are under the supervision of a truck foreman and, while

the foreman and the drivers are especially watchful of the mechanical condition of the trucks, this is also closely watched by the Jacksonville city garage. Weekly each truck goes to the garage for a complete lubrication, and at two-week intervals for the careful mechanical inspection that is so important in keeping costs at a minimum.

The city garage, housed in modern buildings and equipped with modern tools and machines, is under the jurisdiction of a superintendent. This organization, employing 24 people, is housed in a well-planned garage structure 78 by 126 feet in size, adjoining which is a recently constructed, fireproof storage unit measuring 90 by 190 feet. Modern greasing pits, for all the city's equipment, are located in this building.

The organization maintains all the transportation and rolling equipment operated by the city of Jacksonville, with the exception of fire-fighting units and police cars, which are maintained by the Fire and Police Department garages respectively. In addition to motor trucks and the city automobiles, the garage staff maintains tractors, rollers, compressors, sweepers, graders, a locomotive, and a steam crane. The diversified character of the work conducted by the city garage, which also includes body and cab mounting and building, makes it necessary to employ many specialists. In addition to the superintendent, shop foreman, and two men in the office, the garage employs 22 men. The day staff includes six mechanics, two welders, a blacksmith, a carpenter, a plumber, a tire specialist, an upholsterer and painter, the parts man, a man in charge of gasoline and oil, and one general utility man. The four-man night crew consists of one mechanic, and three men who do the routine greasing and inspecting. Adequate stocks of fast-moving parts, tires, and accessories are carried in the garage stockroom.

The Street Cleaning Department is operated under the direction of P. M. Ulsch, Commissioner of Health and Sanitation, with R. E. Parrish as Superintendent, and N. M. Ulsch as Assistant Superintendent and bookkeeper, responsible for the automotive expense records and reports. L. L. Wadsworth, truck foreman, is in charge of all Street Cleaning Department trucks. W. R. Thomas is Superintendent of the garage; J. H. Defee, shop foreman.

This Village Is Now 100 Per Cent Paved

PARKSIDE, PA., a village of 374, provides an excellent example of what small towns and even larger cities can do in the way of street improvements. Prior to 1935, only the main street of this village was paved. Today every street in the village has a permanent street surface. This work involved 29,479 square yards of pavement plus curb, grading and other miscellaneous work. When PWA funds were made available it was agreed to carry out the improvement, which had been discussed for some time.

A 6-inch cement-bound macadam pavement was considered adequate for the traffic to be served. Cement-bound macadam was also chosen because it was best suited to hand labor. A standard coarse stone aggregate ranging from 1¼ to 2¾ inches was used. Grout was proportioned 1 bag of cement to 188 pounds of dry sand passing a ⅛-inch screen, with sufficient water to insure a fluid grout.

In placing the pavement, stone was dumped from 5-ton trucks into boxes which spread and leveled the stone to 7½ inches, to give a compacted depth of 6 inches. Compaction was done with a 5-ton tandem roller.

A ready-mixed grout was used, which was discharged from agitator trucks to a chute extending the full width of the pavement. One-inch perforations on three-inch centers were made at the lower end of the chute to distribute the grout.

After the grouting was completed, the pavement was allowed to stand thirty minutes before giving the second rolling. Rolling was followed by hand tamping, during which low spots were filled in. Final smoothing was done with long-handled floats. Excess water was then removed by belting with a strip of burlap, after which the entire surface of the pavement was dragged longitudinally with burlap.

Many communities have found that this method of paving has won popular support for relief work. With property owners paying cost of materials only, this cost has run as low as $1.50 per lineal foot of frontage.

THE CEMENT-BOUND STREETS OF PARKSIDE ARE APPRECIATED BY ALL WHO USE THEM

NOW Police Radio can *Grow Economically*

To make it possible for law enforcement agencies to enjoy the benefits of the RCA policy of completely coordinated apparatus, two new RCA Terra-Wave Police Radio Transmitters are announced.

The first is a new 25-watt outfit, whose power will be found more than adequate in many places. The second is made from the first by adding a unit to it, creating a 100-watt transmitter, which is truly high power for the short waves used.

Here is the big feature of the new instruments—you can start with the 25-watt job, which naturally is low in price, and should higher power be desired at some future time it can be had simply and economically. You just add a unit to the original one; no scrapping or selling your first transmitter at a loss. It goes right on working for you.

Either transmitter operates on "Terra-Waves," ultra-short waves that are practically free from static, cannot be interfered with by signals from other cities, and cover your territory like the air itself. Write for complete details.

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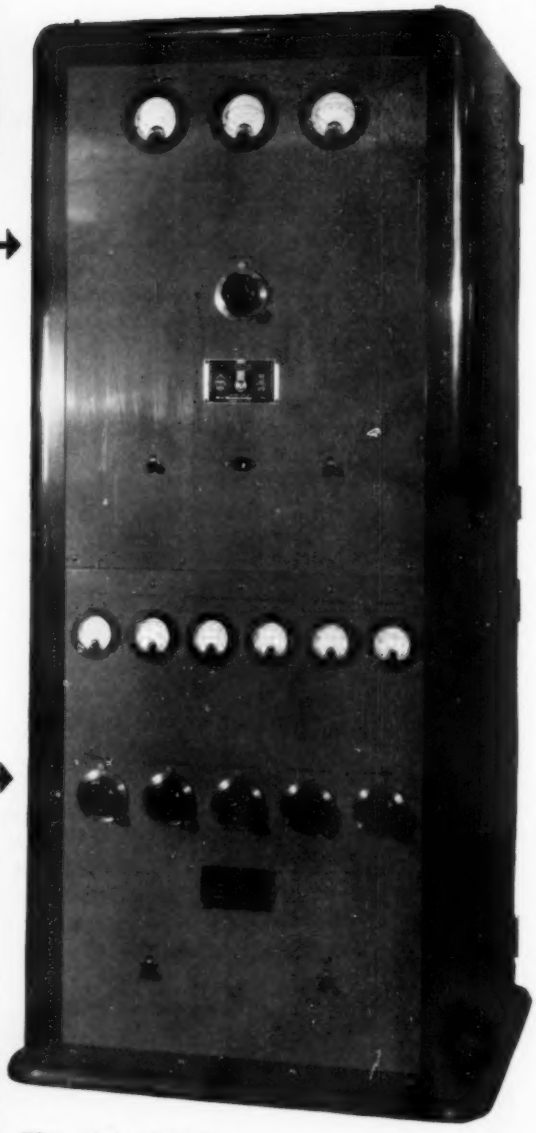

This unit is a 25-watt Terra-Wave Police Radio Transmitter

Add the top unit and you have a 100-watt installation

RCA TERRA-WAVE POLICE RADIO SYSTEM

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Why not remember to mention THE AMERICAN CITY?

Crime and Punishment

By ALDEN W. WELCH
Research Editor, *The American City*

AT Albany on October 1, Governor Herbert H. Lehman of New York opened a four-day conference on Crime, the Criminal and Society, with purpose to drive out the shyster lawyer, the corrupt politician and the inefficient public official. The substance of the Governor's address was as follows:

Organized crime is on the increase, owing in some degree to indifference and inertia of both public officials and public. There are enough law-enforcement agencies, but they are not used to the best advantage. For instance, a certain European criminal was arrested eight times in four years and in Europe convicted promptly each time; then he came to this country, where he has been arrested 23 times in 11 states with no record of convictions.

"I believe," said Governor Lehman, "that one of our principal troubles in the past has been that we have never considered the problem of the criminal as a correlated whole from the time he is a potential delinquent to the time he is returned to society." These are things sought by the Governor at this conference:

1. Education
2. Cooperation among state, county and municipal officials
3. Data for a comprehensive program for more speedy and certain punishment of crime, for better laws
4. Quickened public conscience
5. Aroused public opinion

In another speech, on October 4, closing the conference, Governor Lehman declared the meetings a success and that he would appoint a committee of experts to help him prepare a program of reform bills for presentation at the next session of the Legislature.

The 900 delegates included police, district attorney, judges, parole officers and social workers, and the proceedings are said to have consumed 1½ tons of mimeograph paper. "At the extent and infinite variety of the subject matter," said the *New York Herald Tribune*, "it has been possible only to hint in newspaper dispatches."

Crime is one of the most complex subjects in the world. The reason for this is that it continually touches all classes of society. There are both criminals and criminologists in every stratum. Hence the swelling stream of seemingly conflicting beliefs and policies, which are gradually merging into a solution.

The Hardened Criminal

Crime is like war, concerning which there are jingos and pacifists. Former Governor Nathan B. Miller, at the risk of being tagged reactionary, called for prompt and even harsh justice, with punishment certainly as severe as the offense. The job of the policeman is to prevent the commission of a crime, and where this is not possible, to catch the criminal. To him the hardened criminal is a yellow dog possessing the weapons and the will to kill. The police officer sets forth to gather in that crook and at the same time gather in the evidence which the prosecutor will need in order to obtain a conviction.

The job of the judge and the jury is to see that no mistake has been made, and here is where a wavering in the system takes place, for even when men try to be fair they are prone to make mistakes.

Another serious problem is the frequency with which the red-handed criminal is prosecuted as well as sentenced for a lesser crime than the one for which he was correctly indicted. Austin H. MacCormick, New York City's Commissioner of Correction, urged grand jurors' associations to combine with the police department, follow through the indictments that are obtained, and insist that criminals be prosecuted and sentenced for the crimes they have committed. "Of 28 men indicted for possession of burglars' tools within a given period in New York, two received suspended sentences, one went to state prison, and the others all pleaded to misdemeanor and went to the Island."

Appoint Distict Attorneys

Raymond Moley suggested that district attorneys be appointed, not elected. George Z. Medalie, former U. S. Attorney for the Southern District of New York, proposed a State Department of Justice with district attorneys appointed by the Governor. This was approved by Federal Judge John C. Knox and resisted by district attorneys from several up-state counties.

Then there is the parole system, concerning which few people have accurate knowledge. In it the policeman sees his work undone and probably to be done over again by him at equal or greater risk. Sanford Bates, Director of the Federal Bureau of Prisons, sees 93 out of every 100 men released going straight. Frederick Moran, ex-Director of the Parole Board, pointed out that less than 12 per cent of men released committed major crimes in the first degree. Police Commissioner Lewis J. Valentine of New York asked closer confidence between police and parole, stating that the police will not hound discharged prisoners if they know they are living orderly lives. Indeed, former Commissioner Edward P. Mulrooney, said: "Police have done more to salvage the criminal than any social organization in the state of New York." As to cooperation with the other authorities, Dr. Joseph W. Moore, Chairman of the Board of Parole, said he had never seen an unfavorable recommendation from a prison warden regarding a prisoner who was a candidate for release on parole.

Warden Lewis E. Lawes said that reformation of a convict is most frequently brought about through the influence of another personality. Of the eight men released from among those who have played on the Sing Sing football team only one has turned out badly, and this favorable record he attributed to the influence of college coaches in giving the players some idea of sportsmanship and playing in accordance with rules.

Policemen at the conference showed that they are in hearty accord with the principle of habilitation. What they ask is that the keenest discrimination be employed in selecting for parole only those men who quite clearly are capable of habilitation.

Here indeed are the two objectives of this vocation of

Costs less to own for 3 provable reasons

The GMC 1½-2 ton truck—the truck of value with 47 important quality features—costs less to run for three definite reasons. Owners have proved it and logic confirms it.

1. DOES MORE WORK—Vital superiorities, such as greater payload capacity, higher sustained engine torque, greater horsepower, less deadweight and many other features of design, naturally assure more work per day and per year—enable owners to make greater profits.

2. NEEDS LESS UPKEEP—because of such superiorities as economical 6-cylinder engine, with its many features that contribute to long life; needle bearing universals; full floating rear axle with straddle-mounted pinion; hydraulic brakes with centrifuse drums and quality linings of large area.

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Your nearest GMC branch, distributor or dealer has the detailed bedrock facts!

SENSATIONAL SAVINGS!

GMC Dual Performance now available in 1½-2 ton range saves 22,680,000 motor revolutions per truck per year. Exceptional economy and more work in less time. Ask about it!

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handling souls temporarily lost: (1) to awaken conscience; (2) to recognize that it has awakened.

This is the long pull; but what of the living present? Mr. MacCormick also remarked that "there has been nothing fundamentally new in crime for the last thousand years; the newness is in the methods." Even the modern racket, ably defined by Thomas E. Dewey as "the systematic extortion of money through intimidation by an organization conducted for that purpose," has probably existed in principle as long as there have been peace-loving merchants. The crimes are the same as they always were, and the old immediate remedy remains—catch the thief; but there are new ways to catch him quickly.

Scientific Police Work

The automobile was as much a help to the criminal as to the police—until the advent of police radio. If the car was the climax to quick get-aways, the radio car—in continuous contact with headquarters and with other patrol cars—dampened that climax. Back of the radio system are telephone and telegraph, equally at the disposal of the crook; and the police teletypewriter system, not at his disposal but clicking its news and orders, and the street signal box and recall system. Out on the highways there are motorcycle officers with a roving eye and a keen memory for license numbers. The radio, the teletypewriter, universal fingerprinting in the offing, shrewder disposal of the criminal by the courts as his real needs come into clearer focus—all these are recent gains on the side of justice. In shortening the gap between commission and apprehension, these things serve also as preventives and speed the day when crimes will be committed almost exclusively by people who obviously are not very bright.

Lafayette Improves Water Service by Installing Larger Mains

EMPLOYMENT was given to thirty men on work relief for a period of two months by a CWA and FERA project completed last fall in Lafayette, Ind., and the city secured improved service between its reservoir and the auxiliary pumping station supplying the higher sections of the city. An old 14-inch cast iron main 510 feet in length was removed and replaced by a 20-inch line to improve the flow.

The source of water for the city of Lafayette is a group of fourteen deep wells 12 inches in diameter and ranging in depth from 100 to 114 feet. These wells are driven along the shore of the Wabash River, and ten of them are connected to the city system at this time. They are pumped by ten 1,000-gpm Worthington, American and Fairbanks-Morse deep-well pumps. The other four wells are connected for air-lift pumping if needed.

The water is delivered to a 160,000-gallon cistern, from which a battery of two 6-mgd DeLaval centrifugal pumps and a 4-mgd Worthington pump pick it up and force it through the city gridiron distribution system to a 5,000,000-gallon storage and equalizing reservoir on a hill at the southeast end of the city. An auxiliary or booster pump station delivers the water to the higher sections of the city. The pumping equipment at the booster station consists of one 3-mgd and two 1½-mgd DeLaval centrifugal pumps. There is steam standby pumping equipment at both pumping stations, with steam in the boilers at all times.

The cost of installing the new mains between the reservoir and the auxiliary pumping station was $10,414.05 to the city for the new 20-inch cast iron pipe furnished by James B. Clow & Sons of Chicago, Ill., and $5,871.49 to the Federal Government for labor. The work was done under the direction of Claude M. Draper, former City Engineer, who is in charge of the water works of the city.

Demonstration Garden Cities Assured

THE oft-urged building in the United States of several suburban communities planned somewhat along the lines of the English garden cities of Letchworth and Welwyn, now seems definitely assured.

Establishment of four "green belt" suburban developments to provide low-cost housing for 5,000 low-income families and serve as models for future American communities, was announced on October 11 by the Resettlement Administration.

Construction will begin immediately on the first project, to be located near Berwyn Heights, Md., adjoining the National Research Center of the Department of Agriculture. Work on the others is scheduled to start within a few weeks, under the plans of the Suburban Resettlement Division, which is in charge of operations.

The total cost of the four projects will be $31,000,000, allotted by the President under the Emergency Relief Appropriation Act. Labor for the projects will be taken from relief rolls.

"There are certain features of these communities which would make them unlike anything yet designed in this country," says W. W. Alexander, Assistant Administrator of the Resettlement Administration. "In the first place, each will be enclosed within a protective strip, or "green belt," which will protect it from the encroachment and blight that have destroyed so many American neighborhoods in the past. In this green belt will be provided parks and recreation facilities for the inhabitants of the town and the surrounding territory. In the second place, each will be designed so that the houses control the community. Automobile traffic will be diverted to the outer rim and a system of underpass walks will make it possible for children to attend school, run errands to the grocery and enjoy their games without ever crossing streets."

The Maryland development will provide housing and complete community facilities for 1,000 families, chosen from low-income groups in the Washington and nearby Maryland area. At present housing for such families in this area is wholly inadequate, in the face of probably steady or increasing employment for workers here. Plans are drawn to provide ample room for expansion while still enclosing the community within the protective strip.

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Track-Type and Wheel-Type Tractors . . . Power-Controlled Graders . . . Hand-Controlled Graders . . . Speed Patrol Graders . . . Elevating Graders . . . Power Units . . . Track Wagons . . . Wagon Tracks

ALLIS-CHALMERS
TRACTOR DIVISION—MILWAUKEE, U. S. A.

The Chemical-Mechanical Treatment of Sewage

The New Plant Recently Placed in Operation at Perth Amboy, N. J.

By LOUIS P. BOOZ
Consulting Engineer, Perth Amboy, N. J.

FOR many years the pollution of the Raritan River in New Jersey has disturbed the State Board of Health, which obtained a chancery order in February, 1932, to compel the cities in the Raritan River valley to cease polluting the river. Most of the cities were financially unable to do the required work, so a stay of two years was granted. When the Federal Public Works program was announced, Perth Amboy, an industrial city of 45,000 situated on the Raritan River, Raritan Bay and Staten Island Sound, decided to take advantage of available funds and comply with the State Board of Health requirements. The writer was authorized to prepare plans and specifications for the work, and approval was obtained from the PWA authorities in October, 1933. Under the agreement between the city and the Federal Government, the city bears 70 per cent of the cost and the Government 30 per cent. The total cost of the completed project will be approximately $900,000.

To bring all the sewage to a central treatment plant, it was necessary first to construct a system of intercepting sewers 7½ miles long, ranging in diameter from 18 inches to 48 inches, and twenty diversion chambers. The city has a combined system of sewerage and two existing pumping stations.

Selection of the Treatment Process

In selecting a process of sewage treatment, the city of Perth Amboy, with a thought to future needs, chose chemical-mechanical treatment. This method, because of its extreme flexibility, tends toward a reduction of operating costs. Chemical-mechanical treatment also has the advantage of not being subject to the sensitivity and control difficulties of the older biological processes.

The chemical-mechanical process consists essentially of four steps: (1) coarse screening; (2) chemical coagulation; (3) sedimentation; and (4) filtration. Upon entering the plant, the sewage passes through a bar screen where sticks, rags and other large refuse are removed.

The coarse screens are self-cleaning, the trash being dposited in a bucket without intermediate handling. The mechanism of the screen is completely protected from the sticks, rags and other coarse material in the sewage. After passing through the screens, the sewage is pumped to a floccing chamber, where lime and ferric chloride are added and thoroughly mixed with the sewage. These chemicals coagulate the fine and colloidal particles of sewage into larger particles or "flocs." The ferric chloride feeder which delivers the coagulant to the sewage is of a new type which incorporates storage and feed in one unit. It consists of a rubber chain conveyor with tubes which on the up movement deliver chemicals to the sewage, and on the downward movement introduce air to the tank, which keeps the chemicals agitated.

Pebble mills are used to grind the lime. The speed of the automatic conveyors which carry the lime and paper to the pebble mills is regulated automatically by the flow of sewage through the venturi meter. The sewage in the floccing chamber is agitated by air. The chemicals fed into the sewage are automatically proportioned to the flow

THE CLARIFIER, SHOWING THE CARRIAGE FOR THE SOLENOID WHICH AUTOMATICALLY CLEANS THE FILTER

Traffic Moves when SNOW IS REMOVED

Above: The Model A-8 International Truck, shown above plowing through a big drift, does some of its most useful work during the winter. Other sizes range from the Half-Ton to powerful Six-Wheelers.

DEPENDABLE POWER is the key to a successful snow-removal program. And International Harvester is providing that kind of power in International Trucks and McCormick-Deering Industrial Tractors. These units are given more work in the snowbelt every winter, as those charged with keeping the roads and streets open find them exactly suited for the job. Their ability to handle any emergency that comes along... their stamina to stay on the job day after day and night after night... and their economy of operation have won the respect and admiration of everyone they work for. Should service be needed on International Trucks or McCormick-Deering Tractors, it is always close at hand—through a Company-owned branch, or a distributor or dealer. Before you go ahead with your plans for the winter, find out all about the power available in this International Harvester equipment.

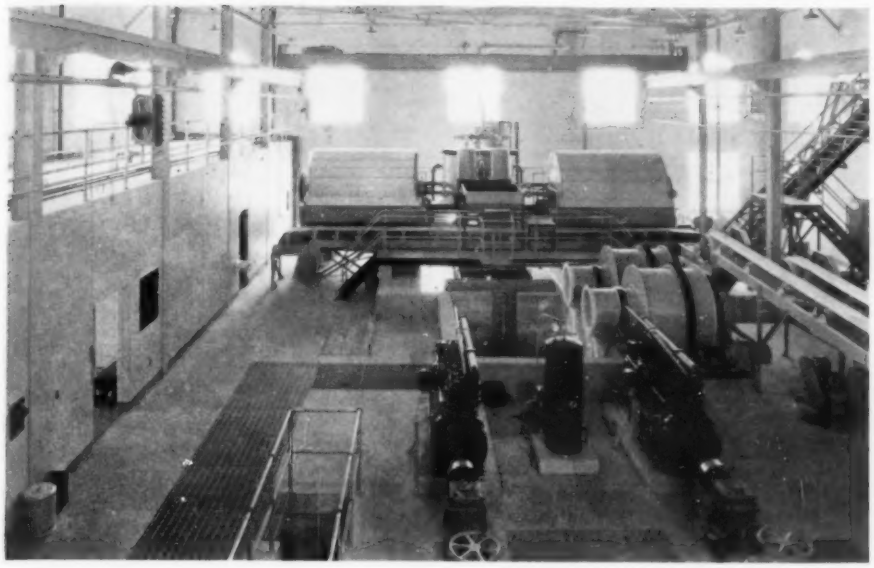
INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(INCORPORATED)
606 So. Michigan Ave. Chicago, Illinois

Assistant Engineer Solan, in charge of maintenance on Colorado's "Million Dollar" highway, a mountain road in the southwestern part of the state, says this about the TD-40 Diesel TracTracTor:

"We had ample opportunity to try out the TD-40 TracTracTor, as it snowed every day, and I mean snow and plenty of drifts. The machine averaged 1.9 gallons of fuel per hour, which cost 13¾ cents a gallon. A larger gasoline-powered tractor of greater rating on the same road used 4.1 gallons of gasoline per hour at a cost of 21½ cents a gallon. The TD-40 also could walk away from the other tractor pushing the same amount of snow on either Molas or Red Mountain Pass."

Below: The McCormick-Deering TD-40 TracTracTor, International Harvester's Diesel, opening the road after a storm. The TracTracTor is also available with gasoline engine. There are wheel tractors in the line for lighter work.

INTERNATIONAL HARVESTER



INTERIOR OF THE NEW SEWAGE TREATMENT PLANT AT PERTH AMBOY, N. J.

In the foreground are the diesel engines driving the pumps, at the right the conveyors to the grinders, and in the background the sludge filters

of sewage by connecting the chemical feeders through an ingenious mechanism to the venturi meter which measures the flow of sewage.

The Clarifier and Sludge Filters

The liquid sewage and floc then flow into two clarifiers, which are large settling basins in which the larger flocculated solids settle to the bottom. These clarifiers are equipped with magnetite filters, and the finer particles or floc are caught in a filter bed which is suspended around the periphery of the settling tanks. The filter bed consists of 3 inches of magnetite sand laid on a phosphor bronze screen. A trolley to which is attached a cleaning mechanism rides around the filter bed above the liquor. This cleaner consists of a magnet which shakes the sand so that the sewage solids are loosened and pumped back to the tank, to settle to the bottom with the sludge. As the filter clogs, the level in the tank rises, and when a certain predetermined height has been reached, a float puts the cleaner in operation. When the bed is clean, the cleaner automatically stops. After leaving the filter bed the sewage emerges as a clear liquid with no nuisance when discharged into a waterway.

The sludge which settles into the bottom of the clarifier is withdrawn and fed to Conkey vacuum filters, which reduce the quantity of the water in the sludge, thus converting it from a liquid state into a solid cake. The vacuum filters are large drums covered with a canvas fabric. A vacuum pump, which produces a vacuum inside the drum, sucks the water out of the sludge, through the cover, leaving the dry sludge deposited on the canvas. A scraper then removes the sludge, which is conveyed to a storage bin. After being dewatered, the sludge is trucked away from the plant to an incinerator.

These simple steps complete the treatment, without odors, flies or other common sewage-plant nuisances. The ground area required for chemical-mechanical treatment is less than for other equivalent treatment, and the first cost of the plant is low.

Features of the Perth Amboy Plant

While space does not permit a detailed description, some features of the Perth Amboy plant should be mentioned particularly. The pumps are diesel-engine-driven, which not only insures reliable and continuous operation, but also benefits the city by the savings in cost of power.

All the equipment in the treatment building is operated from a central control board. Standing at this board, the operator can see all the equipment in the building. This effects simplicity and economy of operation. The amount of labor required at the plant is very low. The automatic chlorine feed delivers chlorine gas to the effluent in proportion to the flow of sewage.

The building is a modern one with an institutional style of architecture, built of red brick and cream-colored tile. In addition to the treatment equipment, the building has a section for a complete, modern laboratory, office, storeroom, washroom, and lobby. A boiler room is also provided, and heat is furnished to the treatment section through steam unit heaters, while the office section is heated by hot water. Ventilation is provided by a centrifugal blower where the sewage enters the building. A smaller size building of the same style houses the chlorine cylinders and chlorination equipment.

The main sewage pumps and diesel engines were furnished by the Fairbanks-Morse Co. Other equipment was furnished and installed by the Filtration Equipment Corporation, of New York. A 90-day test period, as provided in the contract, began June 4, 1935, and the results obtained were highly satisfactory.

Thank You, Mr. Chase

"Pick up such a publication as THE AMERICAN CITY. A copy lies on the desk before me. It is devoted to municipal administration problems. Here the city manager can keep abreast of the latest in airports, taxation methods, bonds, fire departments, housing, traffic control, street lighting, power plants, zoning, radios for police cars, sewage systems, water supply, relief work. Yet the magazine is bulky with advertisements, nor can I find a bathing beauty in the lot. The advertisements are addressed to hard-boiled municipal purchasing agents, and hence reasonably accurate and informing. Private business is offering to supply public business with aerial surveys, cast iron pipe, wire fencing, valves, landscape architecture, road building machinery, scientific instruments, chlorides for purifying water, tractors, sewer machines, scales, roofing, paving brick, asphalt, cement, street lighting devices and steel bridges. The two divisions seem to get along together fairly well between the covers of THE AMERICAN CITY.

—From "Government in Business," by Stuart Chase, The Macmillan Company, 1935.

THIS YEAR
PACIFIC INTERNATIONAL
SAN DIEGO
•
1933-1934
CENTURY OF PROGRESS
CHICAGO

EXPOSITION CROWDS
merely a preliminary test of
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Austin-Western MOTOR PICK-UP SWEEPER

● Every city official will recognize that the choice of this sweeper for maintaining the neatness of great exposition grounds is significant. The job is a severe test: To clean up during a short night all the litter huge crowds can scatter in a long day. Millions of visitors to the three expositions will testify to the cleanliness of the premises—and thus to the efficiency of the Austin-Western Motor Pick-Up Sweeper.

Meeting this test so well, means that in *your town* the same or greater neatness can be maintained in less sweeping time at even lower operating expense. All the features which mean a clean pick-up the first time over will operate to lower the cost of cleaning your streets. The highly efficient gutter broom, the all-round visibility for the operator, the revolving broom and elevating conveyor which follow at the rear wheels and take away *all* the dust and litter, the positive easy hydraulic control of principal adjustments, and finally the remarkable flexibility in steering around obstructions—these all assure a fast and easy job of sweeping at a saving that quickly pays for the machine. Send the coupon for a fully descriptive bulletin.

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FORWARD STEPS

Reported by
Municipal Officials, Chamber of Commerce Executives, and Others

Boston Goes in for Wading Pools

SITE OF THE HYDE PARK WADING POOL IN BOSTON

BOSTON, MASS.—One of the most worth-while of Boston's FERA work-relief projects is the recent transformation of a neglected vacant lot into a wading pool for small children in the Hyde Park section of the city. The pool may well serve as a model for other cities and towns desiring to construct low-cost recreational projects for their younger children.

An experimental effort, the project was planned to give maximum safety, healthfulness, and recreation at the lowest possible construction and maintenance costs. As there were no wading pools in this region, the pool was largely designed from original ideas, and details developed as the plans and construction progressed. So successful has the venture proved, that plans are under way for similar pools in other parts of the city.

The primary consideration in the construction of the pool was to insure health and safety. Smaller than those planned for more populous districts, it is 30 by 50 feet, with the bottom sloping gently to a maximum depth of 21 inches at the center. Fresh water runs continuously through a sprinkler fountain-head and a sub-surface inlet, at the rate of from 4,000 to 5,000 gallons per hour, as compared to the pool capacity of 13,000 gallons. The Health Department of the city has made several tests since the pool has been in operation and has found the bacteria count in the water satisfactory.

A drinking fountain, shaded benches, and toilet facilities have been provided nearby. In its first two months the pool has frequently accommodated as many as 200 children, averaging about 8 years in age.

First of its kind in Boston, the project originated under the direction of Major Roswell G. Hall, Superintendent of Public Buildings, whose engineers prepared the plans and supervised the construction in consultation with Willard D. Woodbury, Technical Adviser to the Department. Major Hall, Boston ERA Administrator at the time the project was carried out, is particularly enthusiastic about the advantages children derive from this form of recreation.

The total cost to the city of Boston was only $3,500, the Federal Government providing the labor; the estimated cost of replacement without Federal aid is $22,500. Utilization of janitorial forces in the adjacent municipal building and the provision of simple but sturdy equipment should result in almost negligible operation and maintenance costs. No supervisory personnel has thus far been necessary.

S. S. SHEPPARD,
Assistant Secretary, Boston Municipal Research Bureau.

THE JOYFUL USE OF BOSTON'S HYDE PARK WADING POOL

"Children of the Shadows" Get Twelve Acres of Open Space

CINCINNATI, OHIO.—This city has secured for its congested West End a 12-acre playfield—opened in February, this year. The first step towards its acquisition was taken when the Cincinnati Recreation Commission, in 1932, through Walter S. Schmidt, then its President, asked the Chesapeake and Ohio Railway Co. to loan the grounds to the Recreation Commission without charge on a lease basis. The Railway officials came from Roanoke, Va., to discuss the matter with the city officials, and finally the lease was arranged. At that time the city was not financially able to purchase land, and the writer, then newly appointed Director of Recreation, seized upon the opportunity afforded by these 12 acres of C. & O. property to meet in part the need for play space. He approached Robert C. Goodwin, who was then handling the work program for the Hamilton County Welfare Department, and found that he was ready to make available the neces-

. . . AND AS A RESULT

The District of Columbia has Standardized on Cork Joint!

FOR SIDEWALKS . . . Below, Johns-Manville Cork Expansion Joint on sidewalks in front of Department of Justice Building. (Left) Close-up of joints.

FOR LOADING PLATFORMS . . . Johns-Manville Cork Expansion Joint on loading platform on F Street.

FOR ROADS AND STREETS . . . Above, the first J-M Cork Joint installation in the District of Columbia (1932 . . . Carolina Place, N. W.). Below, report on present condition . . . "Recent inspections show joint material and joints in the best of condition. This department has since used the cork expansion joint material extensively in sidewalk and curb construction with very satisfactory results." H. F. Clemmer, Engineer of Materials, Department of Highways, District of Columbia.

IN 1932, the District of Columbia installs its first J-M Cork Expansion Joint. In 1935, joint material and joints are still in "the best of condition." (See photograph and performance report at right.) And now cork joint is standard for the Capital's sidewalks, curbs, gutters and loading platforms . . .

J-M Cork Joint is used, too, on many of Washington's streets and school playgrounds, and in a number of the new buildings as an expansion joint in conjunction with wood flooring.

Here, as in countless other installations throughout the country, it is providing enduring protection to all types of concrete construction. Easily compressed, remarkably resilient, it fills the joint space at all times, assuring constant effectiveness without maintenance.

May we furnish engineering data sheets and complete details? Mail the coupon.

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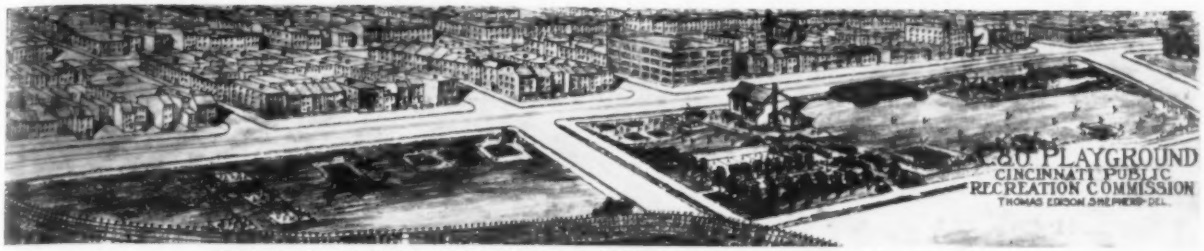

THIS PLAYGROUND IN CINCINNATI'S CONGESTED WEST END MEETS A GREAT NEED

sary labor from the unemployed.

At that time the property looked as if devastated by an earthquake. Piles of brick and stone, partially filled basements, and an immense accumulation of débris, made necessary an enormous construction job, and 550 unemployed men whose families were on the relief program were given work two days each week in clearing up the property and constructing the playing areas. The greatest difficulty of all was in securing money for materials and equipment rental. Many thousands of dollars were raised to go forward with the work, but this money had to be secured from private sources, because the land could be leased only for short periods, although it was evident that it would be available for many years. About $8,000 has been secured by the Recreation Commission through circuses and gifts, including 6,000 dimes contributed by citizens living in the underprivileged West End.

A gymnasium on a privately owned lot was bought and torn down, and reconstructed with a new basement. The Citizens' Recreation Council, a voluntary body composed of Negro residents of Cincinnati, is raising $2,100 for this work. The furnishings for the building were donated by the Inter-Racial Committee of the Women's City Club.

The Recreation Commission has utilized, in addition, a large quantity of salvaged materials in the construction of the playfield and the field house. Thousands of tons of stone have been excavated from the grounds and used to build walls required to maintain the grade of the several playing areas. More than 40,000 brick reclaimed from the 12 acres of property have been used in the construction of playing facilities. Materials from the old Twenty-Eighth District School, which was salvaged and torn down by the Recreation Commission, have been used in this development. A school colony building is being set up on the grounds to supplement the facilities afforded by the gymnasium building. Now available for play are one Class A baseball diamond, three recreation ball diamonds, two recreation ball diamonds and one kickball field for girls, paddle tennis courts, volley-ball courts, horseshoe lanes, children's apparatus, and a shower.

The 12 acres of property loaned by the Railway Company represents a land value of a least $1,000,000. The improvements made with labor furnished by the Hamilton County Welfare Department, plus gifts of money and materials, could not be duplicated for less than $150,000.

TAM DEERING,
Director of Recreation.

Davenport Has Solved Its Parking Problem

DAVENPORT, IOWA.—To make a city popular not only as a shopping center, but also to those who come for recreation, adequate parking facilities near the shopping district must be provided. And that is just what Davenport has done. More than 1,000 automobiles can be parked for an unlimited time within a couple of minutes' walk to the center of the city's retail shopping district.

It is the levee that provides most of the space. Davenport city authorities were alert to the need of such space a number of years ago, when autos first became numerous. Not only is the levee capacious for parking purposes, but there are three streets entering it, providing ready entrance and egress.

DAVENPORT'S MUNICIPAL PARKING GROUND

Under police supervision, cars are properly ranked, so that no motorist experiences any difficulty in parking his car, or leaving the levee. Complete police protection during the day is a special feature of levee parking, so that car owners are never troubled by thieves. At night, until midnight, the levee is floodlighted, making the area as bright as day, so that car owners can enter and leave at any hour in perfect safety.

In close proximity to the great parking space is beautiful LeClaire Park, lying along Ole Man Ribber. Not far distant, also in plain view of the levee auto park, is the new Federal dam, with its gigantic roller gates—a combination of utility and rugged beauty. The nine central gates of the dam, each 100 feet long, and approximately 20 feet in diameter, and the two end gates the same length, operate as a unit. Construction of the dam cost about $6,000,000, and it has visitors from all parts of the world.

SAM KELLY,
Chief of Police.

"Tax Free"—A New Interpretation

LOS ANGELES, CALIF.—On June 27 last, the Board of Water and Power Commissioners authorized the transfer of $173,424.82 surplus power revenue to the General Fund of the city. Other transfers of amounts many times greater were made prior to that date, and within the past few weeks the sum of $1,085,000 was allocated to the city's reserve fund. The item of $173,424.82, however, has special significance in that it represents complete reimbursement to the city of Los Angeles of all tax moneys apportioned in behalf of the municipal electric system prior to its becoming completely self-supporting.

From time to time, during the earlier history of the electric system, it was necessary—as would be the case in venturing upon any new and important undertaking—for the city to provide limited financial assistance. All sums heretofore advanced, aggregating $5,784,000, voluntarily have been repaid, and now there is not a dollar of tax money invested in the enterprise. Meanwhile, the people's net equity in the municipal electric system has grown to the sum of $44,757,383.

Low rates established by the Bureau of Power and Light are resulting in substantial monthly savings to consumers and otherwise redounding to the benefit of the community through industrial encouragement and increased employment.

While these important accomplishments have been in progress, the Power Bureau promptly has met its bond interest and redemption requirements, and all other obligations, from earnings—without the aid of tax funds.

—From the Official Bulletin of the city-owned Department of Water and Power of Los Angeles, for August, 1935.

Beating the Cold Snap TO THE GOAL

"Paper says cold wave tomorrow night."
"I'm not worrying. That Calcium Chloride will have today's concrete out of danger in less than twenty-four hours."

AND the engineer is right! Today Old Man Winter is practically powerless to do any damage to new concrete when it has been "conditioned to stand the gaff" with Calcium Chloride.

While Calcium Chloride accelerates concrete curing at all temperatures and at all stages—from one hour to one year (and assures higher *ultimate*-strength concrete, besides)—its effect is most pronounced in cold weather and in the earlier stages. For instance: At 40° F. a standard-cement concrete will *more than double its twenty-four-hour strength when 2% Calcium Chloride is added to the mix.*

CONSIDER what all this means to highway and structural engineers, as well as to contractors! . . . The completion of paving and building projects under way, or the starting of new ones, regardless of cold weather. No costly covering, heating, or other added protection needed down to freezing temperatures. Quicker, easier finishing and earlier removal of forms and equipment.

What proof of all this? Plenty!—including reports of research and experience by the Highway Research Board, the National Bureau of Standards, the U. S. Bureau of Public Roads, the Highway Department of the District of Columbia, the Ohio State University, the Portland Cement Association, and many state organizations.

WRITE for literature, addressing any of the following members of the

CALCIUM CHLORIDE ASSOCIATION:

THE COLUMBIA ALKALI CORPORATION
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MICHIGAN ALKALI COMPANY
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40 Rector St., New York City

THE DOW CHEMICAL COMPANY
Midland, Michigan

Calcium Chloride FOR MODERN CONCRETE CURING

Echoes from the Knoxville Conventions

Remedies for Municipal Tax Delinquency

SEVENTEEN remedies for tax delinquency in American cities were suggested by the Committee on Tax Collection Procedure of the Municipal Finance Officers' Association, at its meeting in Knoxville on October 22:

1. Better control over development of real estate subdivisions.

2. Limited construction of special assessment improvements, so that the combined burden of general and special taxes will not be so heavy as to take away the property.

3. Prevention of accumulation of unpaid taxes by prompt foreclosure of tax liens.

4. Study of use of land courts like those in Massachusetts.

5. Equitable assessment of real estate (with valuations incontestable once they are established and reviewed).

6. Determination of proper place of real estate tax in the revenue system.

7. Appointment of tax collectors and abolition of the fee system of paying them.

8. Installment payments of both current and delinquent taxes.

9. Empowering tax collectors to seek receivers for rentals on delinquent properties.

10. Combination taxes for all overlapping jurisdictions, with one bill for each parcel, and mailing or otherwise delivering statements instead of having them called for.

11. Establishment of tradition of prompt enforcement of all tax laws.

12. No more laws waiving or canceling penalties. No more discontinuance or suspension of tax sales.

13. Graduated schedule of penalties or interest on delinquent taxes.

14. Thorough knowledge about types of property delinquent and the unpaid charges from general and special taxes on each parcel.

15. Planned tax calendar, related properly to the budget year, date of assessment and maturity of municipal debts.

16. Shortest possible time consistent with fairness to taxpayers between the date of delinquency and date of tax sale of property.

17. In general, the acts governing tax collection procedure should be mandatory, and failure to obey them should be cause for removal of the tax-collecting official from his office.

Unwisdom of English Method of Real Estate Taxation

DECLARING that the English method of property assessment, whereby taxes are assessed at the discretion of the assessing officer on the hypothetical income of property, with exemptions and partial exemptions for agricultural, unimproved and vacant parcels, could never be accepted in American practice, John A. Zangerle, Auditor of Cuyahoga County, Ohio, told last month's convention of the National Association of Tax Assessing Officers that "no assessor could, in the United States, be re-elected to office under the English system if the results of his apparently unequal assessments based on exempt, partially exempt, presumed normal, and actual net profit were open to the public."

Were we to adopt the English net rental-value basis of assessment, we should have to establish a base approximately one-twentieth of the capital-value base. Mr. Zangerle pointed out. This would necessitate greatly increased rates to raise the same taxes, thus making the tax on highly improved, valuable and occupied property almost confiscatory.

Taking up the objections made to our system of capital value assessment, Mr. Zangerle said: "It is urged that if improved property operates in any year at a loss it should pay no tax. Such a policy would exempt from this year's tax three-fourths of the real estate value of this country. Even when operated at a loss in times of depression, it must pay something to the community as payment for beneficial expenditures and as a fee for protection. It would be monstrous to permit real estate owners to exclude the public from its use, cloak it with all kinds of benefits, and then have the public waive all reciprocal obligations, especially during a time when millions of people are hungering for cheaper access to the land."

Needed: Less Tax Limitation and More Planning

OUT from under one cloud but headed for another, if the right precautions are not taken, describes the present situation of American cities, William Parr Capes, Executive Secretary of the New York State Conference of Mayors, told the American Municipal Association in his presidential address at its annual meeting in Knoxville on October 21.

"During the past year," said Mr. Capes, "the average American city has made substantial progress in pulling itself out of the slough into which the economic depression dragged it. Tax strikes and payless pay days have disappeared, pay cuts are being restored in whole or in part, tax delinquencies are being reduced and current collections are improving. Relief expenditures have at least reached their peak and there are hopeful signs of a gradual decrease. Municipal credit has been restored, the number of defaulting municipalities has decreased, and essential services and deteriorating structures and other public improvements are being restored."

The new causes for municipal headaches, however, are more than a few, he pointed out. Greatest of the cities' problems at present is getting an adequate revenue basis for operation, which has been destroyed in many cases and threatened in others by tax limitations on real estate and homestead exemptions.

Among other present-day needs stressed by Mr. Capes is greater attention to planning. He pointed out that many of the blighted areas that are the curse of so many American municipalities are the result of failure to zone or zone properly, or to needless or too rapid expansion. Every city is now spending for services in its blighted areas more than it gets back in taxes, he said. Cities must stop the lack of control of their land use and the over-development of undeveloped urban areas which has had them playing banker for land speculators.

Mr. Capes also urged the cities to consider the effect of the anticipated stabilization of population upon future municipal functions and services. "The time is not far distant when we shall have reached our maximum population," he said. "That day of the boom city is therefore nearly at an end. Cities and their municipal leagues must begin now to study the effect of this important change and to make their plans accordingly."

To Give Cities a Voice in Federal Regulations

A RESOLUTION adopted by the American Municipal Association at its annual convention in Knoxville last month:

Whereas, no mandatory procedure now exists under which the municipalities may present their viewpoints to Federal agencies prior to the promulgation of administrative rules and regulations, under authority of Federal statutes, in matters vitally affecting the welfare of cities; and

Whereas, it is believed that municipal governments should have legal right to give testimony and evidence on matters affecting these governments before final decisions are made:

Therefore, be it resolved that the American Municipal Association recommends passage by Congress of legislation requiring all Federal agencies, charged with the responsibility of promulgating rules and regulations affecting municipalities under Federal statutes, before any such regulations are prescribed, to hold public hearings, after due notice has been given, at which hearings officials of municipal government or their duly accredited representatives be invited to appear and present such data from the municipal viewpoint as may bear upon the problem.

Controller General Rules Against Service Charges in Lieu of PWA Taxes

IN reply to Public Works Administrator Ickes' request for permission to pay the city of Atlanta, in lieu of taxes, $9,600 yearly for municipal services to the Techwood housing project, which is the furthest advanced of any of the PWA Housing Division's Federal projects, Controller General McCarl has ruled that the Division can pay no such fees. Mr. McCarl's adverse ruling includes three points:

1. That municipalities are receiving a great benefit from the Federal Government at scarcely any expense to themselves and should be glad to service the housing projects without charge;

2. That it is possible that the projects will be turned over to private control within a few years and the local governments will be able at that time to more than regain lost revenues by imposing full taxes, thus actually profiting at the expense of the relief program;

3. That the Act under which the housing projects are built provides that all monies received from any sale or lease, or the repayment of any loan, shall be used to retire government obligations issued to finance the operations and, therefore, no authority exists for the expenditure of rental receipts in payment of local taxes or fees.

A discussion of this decision appears in an October 25 Bulletin (No. 72) obtainable from the National Association of Housing Officials, 850 East 58th Street, Chicago.

TRAFFIC SAFETY *IS* controllable

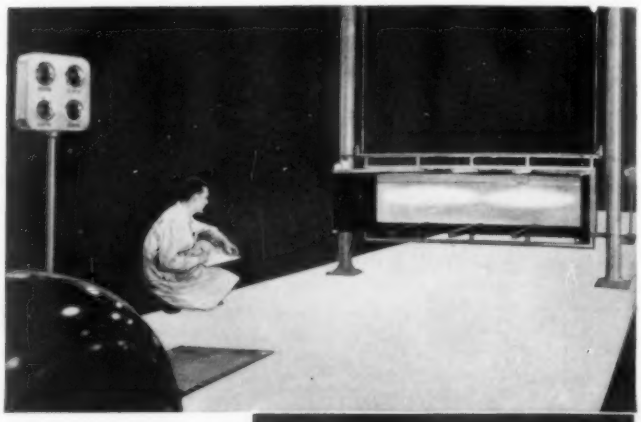
There is nothing that will appeal to the American voter more surely and powerfully today than real, resultful ACTION in reducing traffic accidents. City ordinances—lectures—even big accidents—do little to make people more careful. But you *can* make every car and truck on your streets safer!

Quick, accurate, and fully self-supporting *Compulsory Inspection!*

The Municipal Safety Line is the answer! And Bendix, pioneer and ever foremost in the advancement of motoring safety, provides the ideal, scientifically accurate equipment.

Bendix Civic Safety Clinic *turns a car off the line every minute.* Shows exact stopping power *of each brake.* Tests wheel alignment, each wheel separately and accurately! Tests headlights for level, focus and strength. The driver sees the results on big, plain dials. Car factories employ similar Bendix equipment to test new cars before shipment.

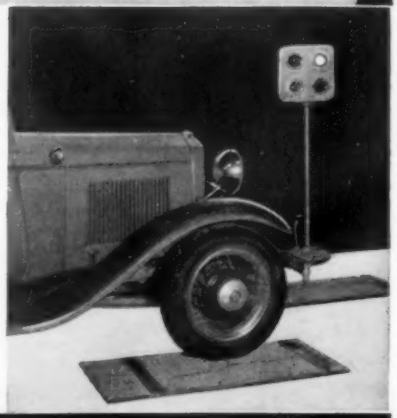
A small fee makes the Bendix Civic Safety Clinic self-liquidating. Send for full details, prices, tested plans of operation.



Above: *Tests headlights for focus, level, intensity . . . on a screen . . . and in broad daylight!*

Right: *Tests wheel alignment, caster, camber, toe-in, entire steering geometry, precisely.*

Below: *Tests each brake separately—by full wheel revolution under electric power . . . shows total stopping ability . . . shows up "out-of-round" drums. TESTS TRACTOR AND TRAILER TRAINS.*



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Send me at once full details about Civic Safety Clinic Equipment, prices, operating plan, etc.

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TRAFFIC CONTROL AND FACILITATION

Conducted by Publications Committee, Institute of Traffic Engineers, 175 Fifth Ave., New York

Paul L. Green, Chairman; Melvin J. Bankhead, James R. Guthrie, T. T. McCrosky, D. Grant Mickle, Robert A. Mitchell, Edward J. O'Meara, Miss I. K. Rolph, Peter J. Stupka, J. C. Vincent, John C. Wrighton

Reducing Rural Highway Hazards

Summary of a Report Presented at the National Safety Congress in Louisville, October 15, 1935, by the Committee on Rural Highway Hazards of the Street and Highway Traffic Section

Reflectorization of Highway Signs

QUESTIONS

Should highway signs be illuminated?

If so, by what method?

What signs should be illuminated?

What part of such sign should be illuminated?

CONCLUSIONS

1. Highway signs should be illuminated as rapidly as funds will permit.
2. Reflector buttons rather than reflector elements or reflecting metal should be used for the purpose.
3. The symbol as well as the outline should be reflectorized.
4. Eventually all signs should be reflectorized, starting with those denoting the most hazardous and dangerous locations.
5. The motorist should be educated as to the meaning of a sign outline.
6. Vandalism must be stopped.
7. Reflector buttons should be also used at such dangerous places as ends of bridges, viaducts, culverts, etc.

RECOMMENDATIONS

Data yet to be obtained:

Relative merits of reflecting metal versus glass reflector buttons.

Construction of Sidewalks in Suburban Areas

QUESTIONS

Is there a need for pedestrian sidewalks?

If so, where shall they be built?

Of what material shall they be built?

CONCLUSIONS

1. It has been proven that sidewalks along the rural highways have reduced pedestrian accidents.
2. Attention should be at least focused on the hazardous points and separate pedestrian facilities provided at them.
3. The sidewalks should be of a type equal to or better than the roadway which they parallel.
4. Accident records should be more specific and complete, giving the exact location of the vehicle-pedestrian accident and information as to the pedestrian movements.

   Example.—June 21; 3:00 A.M.; U. S. 12, near Chelsea, Sylvan Township; injured, two.

   "Dale Yoakim hit two men walking on road. He claimed he went to sleep and was asleep when the accident happened."

   On what side of the road were the men?
5. The sidewalks should be maintained in the same manner as are the roads.

Regulation of Speeds in Suburban Areas

QUESTIONS

When is a "speed trap" not a speed trap?

Why is the regulation of speeds in suburban areas difficult to control?

How is it being handled by some of the states?

CONCLUSIONS

1. The lives of our citizens, and especially of children residing in the suburban areas of cities, should not be endangered because of the lack of a proper and safe speed on the highway running through such areas.
2. Such speed should be obtained after a careful study of all factors, so as to be reasonable and enforceable.
3. Signs denoting the permissible speed should be erected at the proper places so as to inform the motorist.
4. Some one in authority, such as the State Highway Commissioner, should be designated as the person to conduct the study.
5. The motorist should be educated as to the reason for the sign, and the speed denoted should be enforced.
6. The speed denoted through the "vacant districts" of a village or city should be such as to command the respect of the motorist.
7. Automatic signals should not be used for the sole purpose of regulating the speed of traffic in small villages.
8. The location of the heavily traveled highways in the future should be such as to avoid both the residence areas of cities and the small villages.

The Illumination of Highways

QUESTIONS

Which predominate, accidents during the daytime or during the night?

How many times greater will the chance for an accident be at night?

Has any installation of highway illumination proven beneficial?

What types of lamps are now available?

Will highway lighting prove economical?

CONCLUSIONS

1. Highway illuminations will greatly improve the visibility for night driving and will also reduce the hazard caused by glaring headlights.
2. In order to be of benefit, the lamps must be correctly spaced and mounted, depending upon the type used.
3. Without illumination, the chance for an accident is about 3.2 times greater at night than during the day.
4. Examples are to be found in the United States where statistics prove the value of illumination.
5. Considering $500 as the economic loss for each accident, a saving has resulted from the fact of highway illumination.

RECOMMENDATIONS

1. It is recommended that the traffic bureaus of the highway departments become more interested in securing information as to the percentage of traffic moving during the night. Assumptions will then be unnecessary.
2. It is further recommended that the several highway authorities install test sections in their respective states, in order to obtain first-hand information as to the correct spacing and mounting above the highway of the different types of lamps. The effectiveness on different kinds of pavements and their value as to accident reduction can also be learned.
3. It is further recommended that the most hazardous locations be lighted first; then the most congested high-

"A Potent Threat against Reckless Driving"

The Toledo, Ohio, fleet of late model, radio equipped Harley-Davidsons

AGAIN Harley-Davidson Police Motorcycles have proved their outstanding effectiveness in a city using them exclusively. Let us quote from a recent issue of the Toledo Blade . . . .

"Record set by patrolmen using police department's 20 radio equipped motorcycles in first month's service reveals potent threat against reckless driving. . . . Record number of arrests for traffic violations to relieve minds of careful motorists and pedestrians . . . Accident reports show a great decrease . . . Last few weeks have been slow for hospital attendants. . . . Daily average of 200 arrests for traffic violations . . . Not only speeders and careless drivers but scores of drunken drivers have faced judges recently. . . . Several times each night motorists are taken into filling stations to purchase a new bulb for headlight or a summons for court is issued. Nearly 500 such services performed by officers this month."

Let Harley-Davidson's experience with hundreds of law enforcement agencies help you in your plans for greater public safety. We offer a complete motorcycle service—motorcycles with up-to-the minute safety and comfort devices, sidecar, radio equipment and all.

HARLEY-DAVIDSON MOTOR CO., *Dept. M* *Milwaukee, Wis.*

• *See your nearby Harley-Davidson Dealer now . . . or write us for special police literature.*

HARLEY-DAVIDSON

The Police Motorcycle

ways; and then any other highways which prove from records or from spot maps to be in need of some method of assistance.

The Widening of Highways

QUESTIONS

What is the relationship between pavement widths and highway accidents?

What are the dimensions of a standard cross-section of right-of-way?

What is the comparative accident history of two-, three- and four-lane highways?

CONCLUSIONS

1. All state accident report blanks should contain provision for width of pavement.
2. Where the volume demands it, the minimum width for 2-lane traffic highways shall be 20 feet; 3-lane, 32 feet; and 4-lane, 42 feet.
3. The minimum width for shoulders shall be 8 feet. They shall have a stable surface.
4. All bridges and culverts shall be wider than the roadway.
5. Four-lane divided highways shall be constructed in preference to the ordinary 4-lane highway.
6. The width of right-of-way shall be not less than 100 feet. Rolling and hilly country may demand more.
7. The shoulders shall be devoid of obstructions such as trees, poles, weeds, etc.
8. Deep ditches are a hazard. They should be filled up to a safe elevation.

RECOMMENDATIONS

1. It is recommended by the Committee that further investigation be made so as to determine something conclusive as to the relationship between pavement widths and highway accidents.
2. From the standpoint of safety, it would appear to be advisable to construct 4-lane roadways where 2 lanes are inadequate. More study should be made of 3-lane roadways as to safety and chance for accidents thereon.

Elimination of Unwarranted Traffic Signals and Signs

QUESTIONS

What method has been adopted by some of the states regarding future installation and operation?

What do the states hope to accomplish?

Should unwarranted signs also be removed from the right-of-way?

CONCLUSIONS

1. The use of unwarranted or poorly-timed traffic signals and of too many unwarranted traffic signs tends to create disrespect for such control and to increase violations of their indications.
2. Vehicle accidents result from such violations.
3. Every state should have a law vesting some one with authority, such as the Director of Highways, to regulate the intallation and operation of traffic signals on the entire highway system of the state.
4. Before a signal is installed, a careful study should be made to obtain information relative to the need for signalization and to stress the need for uniform and standard signal equipment and operation.
5. No signs the wording of which proves to be ambiguous or of doubtful interpretation, should be permitted on the highways.
6. The proper location of warranted signs is very important. It should be carefully considered before any sign is erected.

The Question of Billboards and Encroaching Mercantile Advertisements

Can the billboard be termed a hazard?

Why is it a hazard?

Where is it deemed most hazardous?

Can the billboard industry be regulated?

What are some of the regulations recommended?

What has the billboard industry to say in defense?

CONCLUSIONS

1. The most prominent thing on our landscape today is the billboard.
2. It is a distinct menace to safety, through its distraction of attention and its obstruction to view.
3. Instances are common where half a dozen billboards clamor for attention on the left as the road curves sharply to the right, or vice versa. They also occur at such hazardous points as road intersections, underpasses, grade crossings, and abrupt crests.
4. There is only one cure for the hazard by it—a big dose of public opinion crystallized in legislation.
5. It is now clear-cut that the Legislature has the power of regulation of billboards and signs, and that such power is not an impairment of private and individual constitutional rights.

RECOMMENDATIONS

1. That the erection of advertising signs on the right-of-way of rural highways should be absolutely forbidden.
2. That the use of luminous advertising signs, even if they be located on private property, should be deemed as confusing to traffic at night and therefore should be strictly regulated as to dimension, location and setback.
3. That a united effort should be made to secure adequate restraining legislation in all of the states, giving some department therein control over rural advertising signs within certain specified distances beyond the established highway right-of-way.
4. That a continued effort be made by next year's Committee to gather all available statistics to further prove the necessity for billboard and encroaching mercantile advertising regulation.

Committee Presenting the Foregoing Report

W. Sherman Smith, Department of Civil Engineering, University of Toledo, Toledo, Ohio—Chairman.

E. J. O'Meara, Traffic Engineer, Wisconsin Highway Commission, Madison, Wis.—Vice-Chairman.

John P. Arnoldy, Chief Highway Patrol Officer, State Department of Highways, St. Paul, Minn.

Ernest L. Bailey, Commissioner, West Virginia State Road Commission, Charleston, W. Va.

T. H. Cutler, Chief Engineer, Missouri State Highway Department, Jefferson City, Mo.

Sam J. Dalton, Engineer of Maintenance, State Highway Department, Jackson, Miss.

H. H. Harrison, Traffic Engineer, Division of Highways, Springfield, Ill.

Harry E. Neal, Traffic Engineer, State Highway Department, Columbus, Ohio.

Earl J. Reeder, Traffic Engineer, National Safety Council, Chicago, Ill.

Captain C. C. Reynolds, Superintendent, State Highway Police, Wilmington, Del.

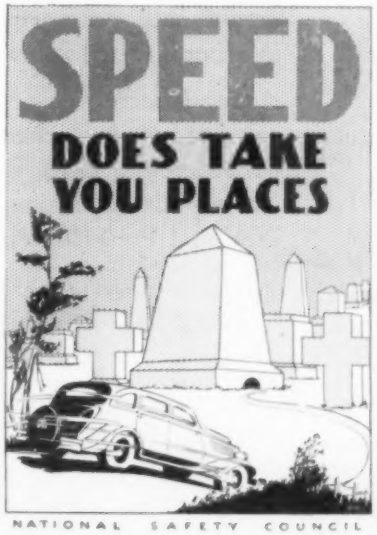
Loren W. Warner, Chief, Bureau of Accident Prevention, Department of Public Safety, Indianapolis, Ind.

Clarence Wertham, Managing Director, Rocky Mountain Motorists, Inc., Denver, Colo.

M. L. Wilkins, Director of Safety, State Motor Vehicle Department, Concord, N. H.

THE American Automobile Association reports that laws providing for compulsory inspection have been passed by Connecticut, Colorado, Oregon, Utah and Vermont, which with the nine "original" states — Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New Mexico, Pennsylvania and Virginia—bring the total to fourteen. Laws are pending in these eleven states: Illinois, Indiana, Iowa, Montana, Missouri, New York, Ohio, South Carolina, Tennessee, Washington and Wyoming.

THE motorcycle policemen of New York City are concentrated in three squads: One covers Manhattan and the Bronx; Two covers Brooklyn and Richmond; Three covers Queens. They are in the Traffic Division, and their job is to stop violations, with speed at the top of their particular list. Growth in personnel in the last 7-8 years has been from 20 motorcycles to 375 motorcycles.



● *Worn Concrete road on U. S. No. 31 as resurfaced under supervision Indiana Highway Commission, 1935*

ILLUSTRATED on this page are brick resurface jobs on concrete highways in Michigan, Indiana, Ohio and Illinois. As the slabs became unserviceable, they were used as a base.

In brick resurface work the full salvage value of the old road is wisely retained. It is protected from further weather and traffic damage at a minimum expense. The public gets the modern, smooth-riding road that holds all records for length of life and freedom from maintenance expense.

Resurfacing with brick is sound engineering. Good results are a certainty. No expensive demolition—settled subgrades are left undisturbed. Widening is accomplished where desired at the same time.

As roads become worn, resurface with brick. Experience proves it is economically sound and highly satisfactory. Data on request from National Paving Brick Association, (Affiliated with Structural Clay Products, Inc.) 1245 National Press Building, Washington, D. C.

Small Photos: From top to bottom.

● *18-ft. concrete resurfaced with brick and widened with 10-ft. strips of concrete. A 1935 job under supervision Federal Bureau of Public Roads and Michigan State Highway Commission.*

● *Resurfaced and widened with brick. The Akron-Cleveland road.*

● *Resurfacing in progress at Springfield, Illinois.*

BRICK

Exhibitor: Highway Exhibit, American Road Builders' Association, January 20—24, Cleveland, Ohio

During November we hope you will remember to mention THE AMERICAN CITY

IMPROVING MUNICIPAL ADMINISTRATION

Current Items from the
Public Administration Clearing House

Council-Manager Cities Mount in Number

TWELVE cities committed during 1935 to council-manager government by the people's vote up to October 1, with another city and three counties deciding the question in fall elections, constitutes a new year's record of adoption, according to the *City Managers' News Letter*, issued by the International City Managers' Association. A total of 461 cities and counties are now under the plan.

Compared with last year, 1935 has already bettered the record by five, and the total adoptions for 1933 by two. Nearly one in every five cities of over 10,000 population in the United States is now a "manager city."

Council-manager cities are of all sizes. The twelve cities adopting the plan this year have populations numbering from 1,045 to 123,356. They are: Ashland, Ky., 2,198; Eastport, Maine, 3,466; Oakland, Maine, 2,664; Grayling, Mich., 1,975; Rockford, Mich., 1,615; Troy, Vt., 1,045; North Troy, Vt., 1,898; Huron, S. Dak., 10,946; Trenton, N. J., 123,356; West Hartford, Conn., 24,941; Pittsburg, Calif., 9,610; Wheeling, W. Va., 61,659.

Saginaw, Mich., population 80,715, will vote on the adoption of a council-manager charter on October 14, and Cuyahoga County, Ohio, with over a million people, including the city of Cleveland; Hamilton County, population 589,356, including Cincinnati, and Lucas County, population 347,709, including Toledo, will consider adoption of manager charters on November 5.

Cities Improve Financial Status

THROUGH improved tax collections, through refunding bonds at lower interest rates, and by employing the pay-as-you-go plan, many American cities are improving their financial status, according to the Municipal Finance Officers' Association, of which Carl H. Chatters is the Executive Director. Here are some samples, as reported by the Association:

The city of Topeka, Kans., reports that it has already collected taxes equal in amount to 97 per cent of the current year's levy, with two months still to go. Furthermore, the debt of the city has been reduced approximately $500,000 during the year.

The city of East Orange, N. J., has reorganized its finances under the New Jersey cash-basis act. Tax collections have improved greatly through new collection methods, which include a card-index system, monthly letters to delinquents and personal calls. Tax delinquency in Lansing, Mich., on May 1 this year was 20.19 per cent, as compared to a delinquency of 30.16 per cent May 1, 1934, and 30.22 the same day in 1933. Los Angeles, Calif., as of June 30 each year, shows the following rate of delinquency on the current year's real estate levies: 1935—8.85 per cent; 1934—10.80 per cent; 1933—12.93 per cent.

Five Washington cities—Bellingham, Enumclau, Kent, Renton and Seattle—have recently refunded $3,594,000 water bonds, using the Utility Bond Refunding Act, Laws of 1935. Savings resulting from lowered interest rates total $576,000. In Bellingham the interest rate was reduced from 5 to 2.694 per cent; in Enumclau from 6 to 3.3 per cent; in Kent from 5½ to 4 per cent; in Renton from 5½ to 3.73 per cent; and in Seattle the 4 per cent bonds were reduced to 2.09 per cent, 4½ per cent to 2.1514 per cent, and 4¼ per cent to 2.417 per cent. These savings were possible because the original bonds were callable.

This year the city of Topeka levied a tax of one mill to raise $95,000 for permanent improvements. The 1935 Legislature authorized a two-mill levy so that all construction might be paid for by cash instead of bonding. In spite of this levy for improvements, the total tax rate was reduced by reason of a reduction in debt charges.

WPA Funds Aid Local Assessors

FACTS assessors and other tax officials have wished to know about their cities but have never had the time or money to find out are being brought to light with WPA aid in a number of cities, according to the *Assessors News-Letter*, issued by the National Association of Tax Assessing Officers. This Federal aid is being used to effect improvements in assessment methods in many places.

Pennsylvania has gone in for map-making projects. Leighton, Douangton, Phoenixville, Lansdowne, Wilkes-Barre, Haverford, Parkersburg, Ridley, Springfield, Edgeworth, Delaware and Chichester Counties have had applications for this purpose approved.

Mansfield, Ohio, has a project to correct and bring tax maps up to date. Wheeling, W. Va., is making a map of all city property, and Kanawha County, W. Va., a card index system for the Assessor's office.

Hartford, Conn., is undertaking a reassessment and installation of a modern assessment system. Washington, D. C., is compiling and indexing old records in the Assessor's office. Portland, Ore., is making an appraisal of public dock properties. New York City is making an investigation of real property exemptions and inequalities, while Indianapolis, Ind., is making a survey of all taxable buildings for the collection of appraisal data. South Bend and Mishawaka, both in Indiana, have applications approved for comprehensive real property surveys. In Ohio, Cincinnati is compiling a listing of special assessments since 1920, to ferret out the reason for delinquencies. Hamilton County, Ohio, is engaged in a land-use survey, to include maps and land classification, while Cleveland, Ohio, is making surveys of family movements in 1934 and the use of thoroughfares, to show trends and effects on property values.

Among proposed projects of larger size are the tax assessment and land surveys for the entire states of Arkansas and Michigan and the project submitted by the city of Ashland, Ky., covering a real estate survey of the entire city, which is to include a scientific assessment of all real estate and improvements, plus a revision of the city maps and photographs of all improvements.

For More Efficient Taxicab Regulation

CITIES desiring to regulate taxicabs should vest this power in the agency which regulates other transportation facilities, but details and specifications should be left to administrative discretion. John Bauer, Director, American Public Utilities Bureau, gives this advice on cab control in the current issue of *Public Management*, official magazine of the International City Managers' Association.

Not all cities have the power to regulate cabs, Mr. Bauer comments, but unless the state has assumed regulation, in most cases the city may. Number of cabs to population, financial responsibility of their owners, and rates charged, are the most common objects of regulation. According to the American Transit Association, of the 93 cities of over 100,000 population, 43 require certificates of convenience and necessity, 74 require assurance of financial responsibility, and 22 regulate rates. Taxis in twelve other cities in this population class are under state regulation.

Reasons for restricting the number of cabs, he points out, are the desire to relieve downtown traffic congestion by reducing cruising, to prevent harmful rate wars, and to provide a point-to-point transportation service that will balance with street-car and bus facilities. In his opinion, however, a fixed ratio of cabs to population or a maximum number of licenses is less good practice than leaving such decisions to the "more flexible discretion of the administrative agency."

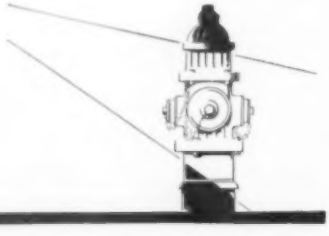
Requirement of financial responsibility takes the form of compulsory liability insurance, bonds or indemnity reserve.

Rate regulation is not common at present, Mr. Bauer notes. He advises that

NIGHT—ZERO—FIRE
IT'S NO TIME TO THAW HYDRANTS

Something's happened to our winters. Two years ago they suddenly grew cold—really bitter. Whether it was due to sun spots or unexplained weather cycles, one thing was clear: Zero weather brought disaster to a lot of waterworks systems. . . . In some cases tragedy resulted. Frozen hydrants failed to deliver, and lives were lost. Delay or failure to get water turned small fires into big ones.

Even the normal routine of testing hydrants became a heavy burden. The usual inspector often had to be replaced by crews with steam or electric equipment. Daily thaw-outs and pump-outs became the custom whenever the thermometer dropped. Digging up broken, leaking, and frost-heaved hydrants piled up labor costs.



R. D. Wood Company carefully investigated hydrant troubles of the last two winters. Even after 60 years of manufacture and improvement we are still looking for ways to make the Mathews Hydrant more serviceable or reliable. This is what we found: Properly installed, Mathews Hydrants unfailingly and completely met the most unusual and severe temperatures produced. This is a result of long experience and careful and ingenious design. . . . For example, the operating threads of the Mathews Hydrant cannot freeze tight because they are in a sealed, always-dry compartment, protected from the flow of inside water by a stuffing box, and from outside snow and ice by a roof-like shield operating nut. . . Again, the Mathews Hydrant can be operated in zero weather, turned off, and forgotten, without danger of freezing. Its positive automatic drain-valve, which opens as the main valve closes, is capable of almost instantly emptying the barrel. . . . Also, and this is very important, the Mathews cannot be broken or heaved loose from its main by the thrust of frozen ground. Every Mathews barrel is surrounded by a loose protection case which is free to rise with frost without straining the barrel, the elbow, or the main.

Naturally, hydrants must be properly set. Drainage area must be provided, and the main must be below the frost line. Given this, the Mathews Hydrant can always be depended upon to deliver water from the main to the hose under any weather conditions.

The Mathews Hydrant is so well designed we'd like you to see it. And Mathews-equipped systems are so inexpensive to maintain, we'd like to tell you about that. An invitation from you will bring both.

MATHEWS HYDRANTS

and "SAND-SPUN" PIPE, a superior grade, centrifugally cast in sand moulds.

SOLD BY ESTABLISHED 1803 **R. D. WOOD CO.** 400 CHESTNUT ST. PHILADELPHIA

a fixed meter rate be prescribed which will provide an adequate return to cab owners, protect patrons from exorbitant and inequal charge, and "still not undermine the service of mass transportation facilities."

Where practicable, he says, "taxicab ownership and operation would be advantageously brought under the same corporate structure with other mass transportation."

Auto Driving Enters the School Curriculum

A HIGH school diploma in the near future may mean that the boy or girl who holds it has had instruction in safe driving as well as grammar, algebra and civics.

The *United States Municipal News*, bulletin of the American Municipal Association and the U. S. Conference of Mayors, reports that New York and Chicago are instituting courses in automobile driving in their high schools this year. Chicago will not only add the driving course but will also immediately adopt a set of firm rules governing cars driven by students during school hours. All students driving to school must fill out applications for the privilege, and those granted permission will be assigned to regular parking spaces. Violators will be punished by the student safety commission, elected by students.

West Valley High School in Spokane, Wash., and high schools of West Hartford, Conn., and Evanston, Ill., are among other schools which now have courses in automobile driving. The state of New Hampshire, which tried an elective course in automobile driving last year in 57 high schools and academies in the state, this year is making the course compulsory. Motion pictures and talks by police, court officials, garage mechanics and doctors are used in the instruction.

Following a safety conference in New Jersey, several cities in the state are contemplating adding driving courses to their curriculums. In Rochester, N. Y., students of one high school have formed a "safe drivers' club," which will have debates on proper conduct for drivers and pedestrians, talks by traffic experts, and panel discussions on civil and criminal responsibilities of the driver.

Curb Asked on Civil Service Exempt Jobs

CONTINUED exemption of governmental positions from civil service regulations "is a concession to the exponents of the spoils system" and constitutes "neglect or refusal to promote the efficiency of Government system."

This belief as embodied in a resolution, climaxed the 27th annual meeting of the Civil Service Assembly, held recently in Milwaukee. Copies of the resolution, which follows, were ordered sent to President Roosevelt, to the President of the United States Senate, and the Speaker of the House of Representatives:

"It is a matter of regret to all those people who hope for continued improvement in personnel administration, the frequency and number of exemptions from the civil service laws of positions in the governmental personnel, that either by legislative enactment or executive order have been declared exempt from the provisions of civil service, and it is accordingly here declared by this Assembly that the best interests of the national service would be served by the inclusion of all personnel positions in the system, and that the reason for the exclusion of those positions, to wit, that an emergency is existing, is not in fact a valid reason, and that for the Government to continue the exclusion of these positions is a concession to the exponents of the spoils system and neglect or refusal to promote the efficiency of Government system."

Evidence was produced during the Assembly sessions that the exemption of positions in Federal Government service "either by legislative enactment or executive order" was having adverse effects on local civil service administration. A. O. Allgeyer, Secretary of the City Civil Service Commission of Buffalo, N. Y., reported that approximately 1,600 "white-collar" relief workers had been added to Buffalo's payrolls and were occupying positions that should normally be filled through civil service appointment.

Although it was agreed that if desirable such evils might be at least partially corrected through a central agency such as the Civil Service Assembly, there was evidence that betterments in public personnel administration could be secured locally, provided professional and civic groups joined in the effort. William Brownrigg, Executive Officer of the State Personnel Board of California, reported on the effectiveness of the California constitutional amendment governing the merit system of appointment to public office in that state. The amendment was passed by a direct vote of the people during the past year, and already more than 20,000 state employee positions have been put under civil service regulations.

Institute for Training in Municipal Administration

MUNICIPAL administrators and other officials in 28 cities of the country have enrolled in practical extension courses that "teach while you work," the International City Managers' Association reports, in announcing the third course in its Institute for Training in Municipal Administration.

The new course—municipal personnel administration—follows one in the organization and functions of municipal government and one in municipal public works administration. It is designed to give the public employment official a workable guide for developing a scientific personnel system. All students at present enrolled in the Institute are public officials except two, who are working with private agencies concerned with government. In addition to city managers, those studying municipal administration while they practice include planning engineers, budget officials, a librarian, a bridge inspector and a public works superintendent. Over three-fourths of them are college graduates, but in most cases their college work did not adequately prepare them for their present duties. For example, a fire analyst has enrolled who specialized in music and languages in colleges.

In addition to the three courses now completed, the Institute is preparing courses on fire administration and on the technique of municipal management.

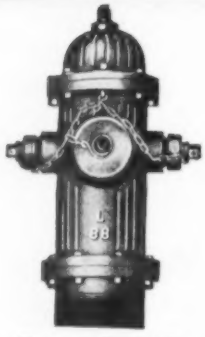
The Municipal Bond Market

Recent sales of new issues from the October numbers of *The Bond Buyer:*

Amount	Borrower and Purpose	Rate (%)	Term (Years)	Basis (%)
$6,000,000	Massachusetts, Public Works Loan..	1.5	1-5 Ser.	1.39
170,000	Summit, N. J., Funding.....	2	3.8	1.91
100,000	Quincy, Mass., Street Construction..	2	1-10 Ser.	1.97
100,000	Binghamton, N. Y., Flood Reconstruction	2.20	1-10 Ser.	2.12
500,000	Pittsburgh, Pa., Relief.....	2.25	10.33 Avg.	2.22
120,000	Hammond, Ind., Water Works.....	4	2 Avg.	2.27
4,500,000	Minnesota, Trunk Highway.....	2.5	14.16 Avg.	2.46
1,265,000	Niagara Falls, N. Y., Sewage Disposal Plant	2.70	11.25 Avg.	2.69
775,000	Sussex Co., Dela., Highway Improvement, Refunding	3	2-32 Ser.	2.77
1,000,000	Harris Co., Texas, County Road and Bridge	3	1-20 Ser.	2.96
500,000	Rock Island, Ill., School.....	3	15 Avg.	2.98
600,000	San Francisco, Calif., Water Distr...	4	4.33 Avg.	3.02
156,000	Orange Co., Calif., School.....	3.25	10.66 Avg.	3.21
700,000	Honolulu, Hawaii, Flood Control...	3.5	5-18 Ser.	3.23
145,000	Sioux Falls, S. Dak., Sewage Disposal	4	12.5 Avg.	3.39
100,000	Summit Co., Ohio, Refunding.....	3.5	5-9 Ser.	3.45
275,000	Cleveland, Ohio, Paving and Sewer, City's Portion	3.5	2-12 Ser.	3.48
116,000	Massillon, Ohio, Canal Improvement.	4	6 Avg.	3.50
193,000	Bismarck, N. Dak, School.....	4	9.25 Avg.	3.60
190,000	Bowling Green, Ohio, Sewer Improvement	4	9.66 Avg.	3.65
113,000	Eugene, Ore., Refunding.....	3.75	5.5 Avg.	3.74
176,000	Jefferson Co., Ala., Board of Education Warrants	4	8 Avg.	3.92
112,000	Indianapolis, Ind., School.....	4	11.66 Avg.	3.96
120,000	Price, Utah, Water-Works Revenue..	4	16 Avg.	4
110,000	Washington C. H., Ohio, First Mortgage Sewer	4	11.75 Avg.	4
153,036	Akron, Ohio, Refunding.....	4.25	5-7 Op.-Avg.	4.08
138,000	Marshall, Texas, Sewer.....	4	13.33 Avg.	4.15
144,500	St. Helens, Ore., Refunding.....	4.5	2.66-15.25 Op.-Avg.	4.5
318,590	Irondequoit, N. Y., Boulevard Improvement	4.75	8 Avg.	4.71

The years will prove

Your Wisdom in choosing CHAPMAN VALVES



Chapman Compression Fire Hydrants are self-draining, freeze-proof, low in maintenance and self-sealing in case of traffic accidents.

Chapman Floorstands provide a proven modern method of operating gate valves and sluice gates either electrically or manually. Motor-operated floorstands are ideally suited for control of large gates.

Chapman Non-Slam Check Valves close quickly, quietly, and eliminate water hammer. They increase pipe line capacities . . . reduce head loss as much as 75%, and effect substantial power savings.

Chapman List 61 Gate Valves have strong iron bodies . . . heavy hard bronze seat rings and disc faces that can be economically removed and renewed. They exceed A. W. W. A. specifications.

You build a long and honorable life into your water works when you specify Chapman Valves. Years and years of low maintenance costs and trouble-free performance will prove the soundness of your choice.

Chapman engineers know the requirements of water works service. They have built into every Chapman Valve the long-wearing qualities that keep it on the job year after year, giving record-breaking service at bed-rock cost.

There is a Chapman Valve for every water works and sewage disposal project. The Chapman line is complete: globe, gate and check valves . . . automatic cone valves . . . altitude control valves . . . sluice gates . . . hydrants . . . brass goods . . . shear gates . . . foot, flap and mud valves . . . floor stands and all types of operating mechanisms. Sizes range from ½ in. to 9 ft.

Build for permanence. Let Chapman Valves stand as a lasting proof in years to come that you built well and shrewdly "way back in '35."

The CHAPMAN VALVE MANUFACTURING COMPANY

INDIAN ORCHARD, MASSACHUSETTS

During November we hope you will remember to mention THE AMERICAN CITY

Water Rates and Service Charges, Installation Charges, Hydrant Rentals and Sprinkler Costs—XIX

Abstracts of Water Department and Company Reports

Fremont, Nebr.

Population	11,407
" served	Unknown
Number of services	2,635
" " meters	2,635
" " hydrants	225
Miles of water main	40.0

The water rates in Fremont are:

First 2,000 cu. ft.	$ .10	per 100 cu. ft.
Next 8,000 " "	.06	" " " "
Excess " "	.04	" " " "

The minimum bill per month is determined by the size of the meter as follows:

$ .50 with	5/8" meter
1.00 "	3/4" "
2.00 "	1" "
2.50 "	1 1/4" "
3.00 "	1 1/2" "
4.00 "	2" "
6.00 "	3" "
8.00 "	4" "

Bills are subject to a penalty of 1c per 100 cu. ft. registered if not paid within 10 days after they are rendered.

Every person desiring a supply of water from the city water main must make an application to the Water Department, using blanks furnished by the Department for that purpose. Not more than one house is supplied through one meter, and each meter connected is provided with an outside accessible standard curb cock, with box. No permit to use water is issued for a period less than one month, and all fractions of a month are charged as a full month. No water is furnished except through a meter furnished by the Water Department.

The owner of rented premises is in all cases held responsible for the payment of water used on the premises. Officers of the Water Department are prohibited from allowing credit, and the Water Department must shut off water from all premises where the bill is not paid within 30 days after it is due.

The Department of Utilities furnishes a 1½" or smaller meter for each new water service, providing the applicant has met all the requirements of the Board of Public Works. Meters condemned by inspectors are replaced without expense to the customer, and the condemned meter becomes the property of the Department of Utilities. The customer is held responsible for damages other than ordinary wear. When requested, water meters may be rented at a rate of 25c per month for a 5/8" meter, and larger meters on a proportionate basis. Meters larger than 1½" are supplied by special contract with the Department of Utilities. Customers using these meters are responsible for all damage to meters except for ordinary wear. All water users, before receiving service, must make a deposit as a guarantee for payment of bills in an amount equal to two months' bill and a minimum bill of $2.50.

Fire hydrants are installed and serviced free of cost to the city by the Department of Utilities. All private consumers of water wishing to lay large pipes with hydrants and hose couplings to be used only in case of fire, are permitted to connect with the street mains at their own expense upon application to the Board of Public Works. They are allowed the use of water free of charge for fire purposes only.

LON D. WRIGHT,
Superintendent, Department of Utilities.

Boston, Mass.

Population	800,000
" served	800,000
Number of services	102,510
" " meters	102,510
" " hydrants (private)	381
(public)	11,179
(high-pressure)	510
Miles of water main	967.96

The water rates within the corporate limits of the city of Boston are:

First 20,000 cu. ft.	$1.84
Second 20,000 " "	1.71
Third 20,000 " " and up to 1,000,000 cu. ft.	1.58
All over 1,000,000 cu. ft	1.05

The minimum charge for water supplied through a meter is $10.00 per year, $2.50 on each quarterly bill. Bills must be paid for each quarter within 10 days after the first day of the quarter, beginning with the months of April, July, October and January.

Applications for connections by new or enlarged service pipe must be filed in writing at Room 604, City Hall Annex, by the owner of the premises or some person authorized by him, stating fully the purpose for which the water is to be used and the location of the premises to be supplied, giving street and number. The cost of installing service pipes and the charge for water used in construction must be paid for by a deposit at the time of application. Water is not furnished by the city through distribution or service pipes laid by private parties, unless the pipes between the street line and the meter are of non-corrosive material satisfactory to the Commissioner of Public Works and laid with his permission and under his inspection.

No charge is made for public or private hydrants. When application is made for the installation of fire pipes into a building, a plan must be filed with the application showing the piping inside of or entering the building, the proposed pipes and connections, the division walls and floor construction; and for sprinkler service the number of sprinklers in each room. The cost of installing fire pipe must be paid for by a deposit at the time of application. The amount of the deposit must be sufficient to cover the estimated cost of installation as determined by the Commissioner of Public Works. If the actual cost proves less than the estimated cost, the balance is refunded, but if it exceeds the amount of the deposit, a further sum must be paid to make up the excess. The maximum size of fire pipes entering buildings is 4" in diameter.

DANIEL M. SULLIVAN,
Division Engineer, Water Division,
Public Works Department.

New Rochelle, N. Y.*

Population	Unknown
" served	100,000
Number of services	14,000
" " meters	14,000
" " hydrants	1,700
Miles of water main	240.0

The rates for continuous service for domestic, commercial, industrial and public use for all quantities used in each quarter-year, including the amount allowed in the minimum charge, are as follows:

First 20,000 cu. ft.	35c	per 100 cu. ft.
Next 20,000 " "	32c	" " " "
" 20,000 " "	30c	" " " "
" 20,000 " "	27½c	" " " "
" 20,000 " "	25c	" " " "
" 20,000 " "	22½c	" " " "
Over 120,000 " "	20c	" " " "

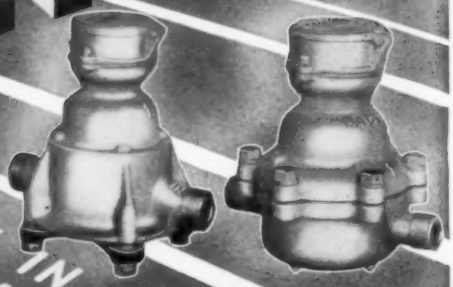
The minimum charge, based on the size of the meter and allowance of water without additional cost, is as follows::

			Allowance Without Additional Cost
5/8" meter	$ 2.45	per quarter	700 cu. ft.
3/4" "	4.90	"	1,400 " "
1" "	9.80	"	2,800 " "
1½" "	21.00	"	6,000 " "
2" "	35.00	"	10,000 " "
3" "	52.50	"	15,000 " "
4" "	70.00	"	20,000 " "
6" "	140.00	"	42,000 " "

E. T. CRANCH,
Manager, New Rochelle Water Co.

* The service covered on this report includes not only the city of New Rochelle but in addition the town of Eastchester, and the villages of Tuckahoe, Bronxville, North Pelham and Pelham Manor.

BADGER METERS



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Badger Water Meters have won world-wide acceptance . . . A preference built on performance . . . This recognition is a high tribute to their designs and quality construction . . . All Badger Meters follow five steps of manufacture: Selection of best materials — precision machinery — careful assembly — rigid inspections and accuracy tests . . . The benefits of 30 years of manufacturing experience are reflected in the dependable, economical and efficient performance of Badger Meters in the field . . . BADGER METER MFG. CO., Milwaukee, Wis.

BADGER *Water* METERS

Why not remember to mention THE AMERICAN CITY?

Gloversville, N. Y.

Population	23,000
" served	23,000
Number of services	5,574
" " meters	5,102
" " hydrants	482
Miles of water main	56.94

The present water rates, which became effective November 1, 1930, and are based on the use of water in 6-month periods, are as follows:

First 5,000 cu. ft. or less	25c	per 100 cu. ft.
Next 5,000 "	20c	" " "
" 5,000 "	15c	" " "
" 5,000 "	10c	" " "
" 5,000 "	8c	" " "
25,000 to 500,000 cu. ft.	7c	" " "
500,000 " 1,000,000 "	6c	" " "
1,000,000 " 2,000,000 "	5c	" " "
2,000,000 " 3,000,000 "	4c	" " "
3,000,000 or more	3c	" " "

The minimum charges for six months, based on the size of the meter, are:

½" meter	$ 4 00
⅝" "	4 00
¾" "	10 00
1" "	20 00
1½" "	50 00
2" "	100 00
3" "	200 00
4" "	300 00
6" "	500 00

A 20% discount is allowed on bills paid within 30 days, and formerly 10% was added to the bill if it was not paid within 30 days and the flow of water was cut off. This penalty was dropped when the discount went into effect. The loss of the discount is the only penalty.

All new services are ¾" copper pipe laid to the curb at a flat charge of $30, which includes excavation, materials, labor and overhead. A flat charge of $25 is made for the replacement of old iron services with ¾" copper pipe. Both charges are payable in advance. On paved streets a charge is made also for replacing the pavement. All services of copper pipe or lead are maintained by the Department.

All hydrants are owned and maintained by the Water Department at no charge to the city. The water works makes all sprinkler taps and runs all pipe to the curb, at which point the owner has to have his plumber or sprinkler company install a post indicator valve and do all work from that point on at his expense. These taps are installed at the cost of labor and materials. There is no charge for water used in sprinkler systems in any form, such as a sprinkler head tax or charge for water used in case of a fire.

EDWARD F. HEMSTREET,
Assistant, Gloversville Water Works.

Waco, Texas

Population	57,000
" served	55,000
Number of services	12,917
" " meters	12,917
" " hydrants	700
Miles of water main	185.0

The water rates are divided in industrial and domestic rates, with a separate division for summer rates, as noted below:

DOMESTIC

First	2,000 gals.		Minimum 75c
Next	18,000 "	@	20c per 1,000 gals.
All over	20,000 "	@	10c " " "

SUMMER RATE

A summer rate is applied from May 15 to September 15, with a 5% discount on the first dollar of the bill, a 10% discount on the second dollar, and 15% discount on all bills over $2.00.

INDUSTRIAL

First	2,000 gals.		Minimum 75c
Next	18,000 "	@	20c per 1,000 gals.
"	980,000 "	@	10c " " "
"	1,000,000 "	@	7c " " "
All over	2,000,000 "	@	6c " " "

A minimum ¾" service is required for all installations. For a two-story, two-apartment house and for a three- or four-apartment house a minimum 1" service is required. For a business house or for an apartment house of more than four apartments, the minimum service is determined by the Water Department and plumbing inspector. Each building, except accessory buildings and uses customarily incident to the main building, must have a separate service and a separate water meter. Each apartment of an apartment house must have a separate water meter except in special cases where undue hardship would be caused by the strict enforcement of this rule. Under these conditions the Water Department acts in a judicial capacity to determine the meter requirements. All buildings or residences which are remodeled or changed are required to conform with the above regulations. There is a service charge of $1.00 made for turn-on for any cause whatsoever after water has been shut off.

A charge of $5.00 per year per fire hydrant is collected from the city, together with a charge of 6c per 1,000 gals. for water used for the sprinkling of the streets by the city.

GEORGE J. ROHAN,
Superintendent, Waco City Water Works.

Paris, Tenn.

Population	8,000
" served	Unknown
Number of services	1,320
" " meters	350
" " hydrants	90
Miles of water main	11

The water rates in Paris are as follows:

First	33,333 gals.	@	25c	per gal. or	$ 8 33
Up to	50,000 "	@	20c	" " "	11 66
" "	360,000 "	@	17c	" " "	64 36
All over		@	16c	" "	

The minimum charge is $1.00, for which 4,000 gals. is delivered without additional cost. A deposit of $2.50 is required for the water meter.

Fire hydrants for public and private service are billed at the rate of $3.50 per month, and sprinkler services at $3.50 per month.

W. J. HOLMAN,
District Manager, Kentucky-Tennessee Light and Power Co.

Brookline, Mass.

Population	50,300
" served	50,300
Number of services	7,913
" " meters	7,908
" " hydrants	1,119
Miles of water main	117.3

The water rates are uniformly 18c per 100 cu. ft., and bills are rendered quarterly.

The charges for the installation of service pipes are as follows:

1" cement-lined pipe $0.95 per ft. from street line to meter when excavation is done by Water Works Department; $0.35 per ft. as above, when excavation is done by owner.
1½" cement lined pipe $1.25 as above and 55c per ft.
2" " " " 1.35 " " " 70c " "

There is no charge for street work except for 1½" and 2" services, where an increased charge for additional material cost is made. When a service is relaid with a larger pipe, the owner pays all the cost, including the resurfacing of the street. There is no charge for meters except where an owner wishes a secondary meter, in which case he buys the meter. The sizes of meters are determined by the Water Works Department after an investigation of the type of fixtures installed on the property.

There is no hydrant rental charge to the town. A hydrant is open to a private party for 50c per day. The entire cost of private hydrants is paid by the owner. All fire supply and sprinkler service charges are paid in full by the owner, and no domestic tap may be made to such services except by the approval of the Water Board. Occasional examinations for violations are made.

W. B. BUSHWAY,
Asst. Superintendent, Brookline Water Board.

Sioux Falls, S. Dak.

Population	35,000
" served	35,000
Number of services	8,320
" " meters	7,800
" " hydrants	550
Miles of water main	105.0

The quarterly and monthly rates for metered water services, which became effective March 15, 1933, are:

QUARTERLY RATES

First	4,200 cu. ft.	@	25c	per 100	$10 50
Second	4,200 " "	@	18c	" "	7 56
Third	4,200 " "	@	16c	" "	6 72
Fourth	4,200 " "	@	14c	" "	5 88
Fifth	4,200 " "	@	12c	" "	5 04
Next	21,000 " "	@	10c	" "	21 00
All over	42,000 " "	@	9c	" "	

MONTHLY RATES

First	1,400 cu. ft.	@	25c	per 100	$ 3 50
Second	1,400 " "	@	18c	" "	2 52
Third	1,400 " "	@	16c	" "	2 24
Fourth	1,400 " "	@	14c	" "	1 96
Fifth	1,400 " "	@	12c	" "	1 68
Next	7,000 " "	@	10c	" "	7 00
"	2,000,000 " "	@	9c	" "	1800 00
All over	2,014,000 " "	@	8½c	" "	

The above rates are increased 25% for consumers outside the city limits. All regular bills are subject to 10% discount if paid on or before the 10th of the month due. The minimum charge is $8.00 per year, or 67c per month. The minimum charge for consumers outside the city limits is $12.00 per year, or $1.00 per month. It will be noted that the monthly and quarterly rates figure out the same for the same period of time. The monthly rates are used on business and manufacturing places, where the consumptions are comparatively high and readings are taken and billed for monthly payments. Quarterly readings are used on residences which are billed every three months.

JOSEPH S. NELSON,
Commissioner, Sioux Falls Water Works.

IN AMERICAN WATER METERS

you obtain these needed features not found elsewhere. They insure maximum return on your meter investment:

Extra-thick reinforced measuring disc minimizes slippage, compels extra accuracy that wins comparative tests.

Frost bottom tested at the factory to break at the proper pressure—500 to 550 pounds. No dependence on flange bolts.

Frost-protected gear train, with gears that separate upon freezing as well as the chamber.

Chromium-shell gears with enclosed dirt-proof bearings wear almost forever and are adequately lubricated by water. Oil-enclosed gears, optional.

Simplicity that requires only the absolute minimum of parts and keeps each part simple.

Precision manufacture so fine that all parts are completely interchangeable and are regularly sold singly,—no matched pairs or unit assemblies needed.

Standard stock meters containing the construction described above will be supplied on request for inspection or testing purposes. Our catalog also gives full description.

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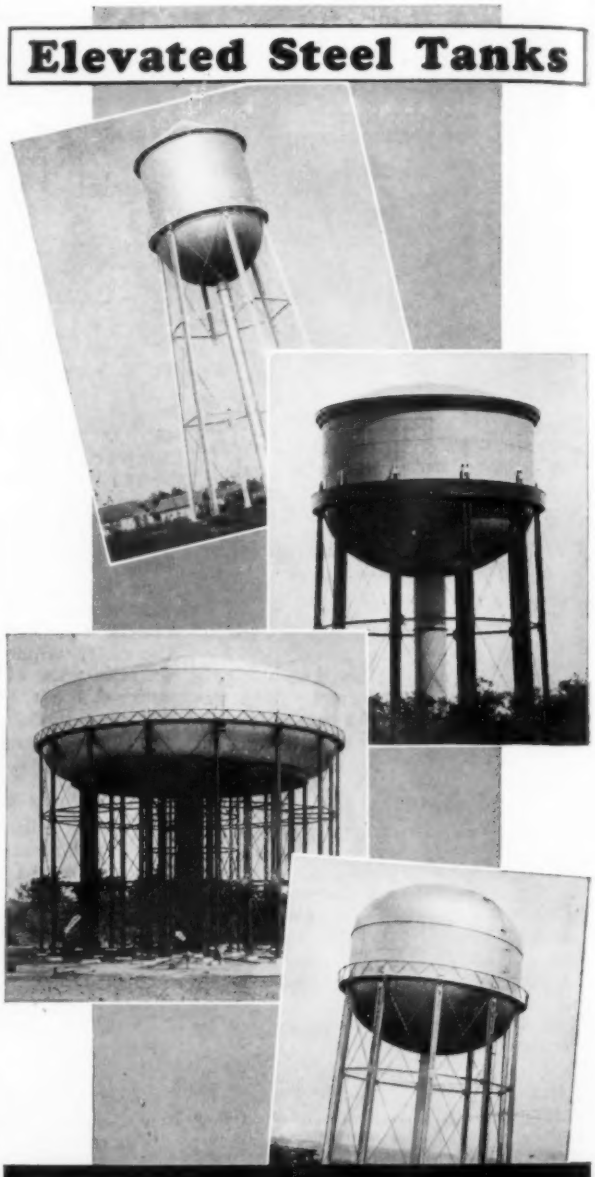

These photographs illustrate in a general way the wide variety of elevated tanks manufactured and erected by the Pittsburgh-Des Moines Steel Company. Each one is built as it is for a very definite reason. Write our nearest office; put your problem up to them. They will gladly tell you what type of tank you should have, and how much it will cost.

PITTSBURGH-DES MOINES STEEL COMPANY

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913 TUTTLE STREET · DES MOINES

New York Chicago Dallas San Francisco

Danville, Ill.

Population	36,765
" served	45,000
Number of services	11,220
" " meters	7,678
" " hydrants	660
Miles of water main	104.0

The meter rates for domestic services are:

First 15,000 gals. per mo. or 45,000 gals. per quarter			$ .378 per 1,000
Next 135,000 " " " " 405,000 " " "			2.83 " "
Over 150,000 " " " " 450,000 " " "			.13 " "

The minimum bill is 50c per month, or $1.50 per quarter.

The wholesale rate for which the minimum bill is $120 per month is as follows:

First 3,000,000 gals. per mo.			$ .13 per 1,000 gals.
Over 3,000,000 " " "			.077 " " "

All services are installed by the water company.

The hydrant rental for municipal fire protection is $50 per year for each hydrant installed. The rates for private fire hydrants are:

2" lines	$26.55
3" "	46.61
4" " or larger	66.08

No charge is made for fire hydrants to consumers where the water bills exceed $1,200 per year, but no fire hydrants are permitted unless the consumer specifically relieves the company from any and all liability on account of failure of service.

H. M. Ely,
Superintendent, Interstate Water Company.

Pontiac, Mich.

Population	55,000
" served	50,000
Number of services	12,000
" " meters	12,000
" " hydrants	1,500
Miles of water main	180.0

The present meter rates were established by city ordinance on July 1, 1932, and are as follows:

First step: 8c per 100 cu. ft. for the first 100,000 cu. ft. of water metered per quarter
Second step: 7c per 100 cu. ft. for the next 900,000 cu. ft. of water metered per quarter
Third step: 6c per 100 cu. ft. for the next 100 cu. ft. of water metered per quarter
Fourth step: 3c per 100 cu. ft. for all over 1,000,100 cu. ft. of water metered per quarter

Minimum Bill Per Quarter

5/8" meter	$ 3.30	per quarter
3/4" "	3.75	" "
1" "	4.50	" "
1 1/4" "	5.85	" "
1 1/2" "	6.90	" "
2" "	9.90	" "
3" "	17.55	" "
4" "	26.85	" "
6" "	51.80	" "
8" "	81.75	" "
10" "	106.80	" "

Under date of July 1, 1932, also, these rates were reduced 10% as a relief measure, which is to remain in full force and effect but may be changed by further action of the Commission at any time.

Payment of the minimum bill entitles the consumer using a 5/8" meter to the first 1,500 cu. ft. of water per quarter without additional charge; for larger meters, the payment of the minimum bill entitles the consumer to the first 2,000 cu. ft. without additional charge.

All services are installed by the city from the main to the property line, using lead pipe in the street. The charge for service connections is a flat rate of $25 for a 3/4" connection, which includes all material. The property owner's service pipe from the curb to the house must be galvanized iron, lead or copper pipe. All services 1" and larger are made by the city on a cost basis.

On fire-sprinkler and other fire-protection connections, the minimum bill per quarter is one-third of the minimum rates stated above, based on the size of the service. On connections to churches, the minimum bill per quarter is one-half of the minimum rates, based on the size of the meter.

H. L. Monroe,
Superintendent, Water Department.

Beatrice, Nebr.

Population	10,297
" served	Nearly all
Number of services	2,600
" " meters	2,600
" " hydrants	165
Miles of water main	34.0

The quarterly schedule of water rates for consumers in Beatrice is as follows:

1,000 to 40,000 gals.	37 1/2c
40,000 " 70,000 "	33c
70,000 " 100,000 "	30c
100,000 " 150,000 "	25c
150,000 " 300,000 "	22c

Special rates applicable from July 1 to December 1 of each year for irrigation and sprinkling are as follows:

1,000 to 4,000 gals.	37 1/2c
4,000 " 150,000 "	25c
150,000 " 300,000 "	22c

Monthly rates for the largest consumers are:

100,000 to 200,000 gals.	20c
Above 200,000 gals.	15c

A charge of $15 per tap and $10 for a water meter is made by the Department of Water for each service from the main to the property line for new consumers.

A charge of $2.50 per hydrant per month is taken from the general fund of the city and paid into the water fund.

W. B. McClanahan,
Water Commissioner, Department of Water.

Cambridge, Mass.

Population	118,000
" served (2,000 students)	120,000
Number of services	15,000
" " meters	14,750
" " hydrants	1,200
Miles of water main	150

The Water Board of the city of Cambridge has the power to meter all supplies. The charge for metered water is 10c per 100 cu. ft., with a minimum charge of not less than $5 per year. The present meter rates have been in effect since April 1, 1911. Water bills are payable quarterly at the office of the City Treasurer, and if not paid within 30 days after the end of the quarter, the General Superintendent under the direction of the Water Board is instructed to cut off the supply, after sending a special notice that the water will be cut off for non-payment. The water is not turned on again for the same occupant or owner except upon payment of the whole amount due, together with cost as determined by the Board. The following charges are made for the installation of services both for ordinary domestic supplies and for fire and sprinkler services; the price includes stock and labor from the center of the street to the property line as follows:

3/4"	$1.00	per foot
1"	1.10	" "
1 1/2"	1.25	" "
1 1/2"	1.50	" "
2"	2.00	" "
4"	4.00	" "
6"	6.00	" "
8"	8.00	" "

There is no charge for fire hydrants, and all water used by the city is free.

Timothy W. Good,
General Superintendent, Water Board.

Kansas City, Mo.

Population	420,000
" served	480,000
Number of services	91,374
" " meters	79,697
" " hydrants	10,162
Miles of water main	846.6

The schedule of water rates for consumers in Kansas City, Mo., is as follows:

For	Cubic Feet	Rate Per 100 Cubic Feet	Costs	Summary Cu. Ft.	Summary Costs
Not exceeding	300	Minimum	$ .50	300	$ .50
First	2,000	17c	3.40	2,000	3.40
Next	2,000	16c	3.20	4,000	6.60
"	3,000	15c	4.50	7,000	11.10
"	3,000	14c	4.20	10,000	15.30
"	5,000	13c	6.50	15,000	21.80
"	5,000	12c	6.00	20,000	27.80
"	10,000	11c	11.00	30,000	38.80
"	20,000	10c	20.00	50,000	58.80
"	50,000	8c	40.00	100,000	98.80
"	400,000	7c	280.00	500,000	378.80

All additional water used is charged at the rate of 6c per 100 cu. ft. All bimonthly bills rendered on readings made once in each two months, are computed on a basis of one-half of the consumption being registered for the two months having been used in each month. Bills are delinquent 10 days after issuance, and service may be shut off immediately thereafter for non-payment. The labor cost for the installation of meters is as follows:

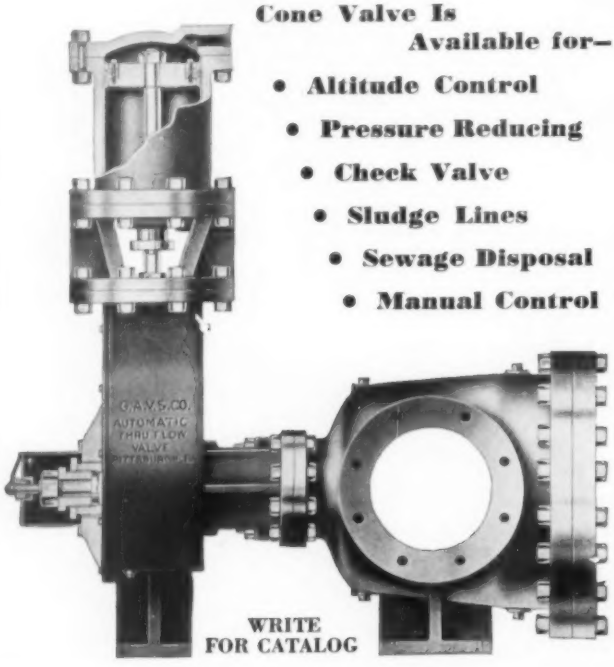
5/8" set	$ 3.00
3/4" "	3.50
1" "	3.50
1 1/4" "	5.00
1 1/2" "	5.00
2" "	5.00
Over 2", time to set	

The cost of the meter is charged in addition to the labor charge above.

There is no rental charge for public fire hydrants. Fire protection, either sprinkler system or fire hydrant, for protection of buildings under one roof is charged at $12 per year, payable quarterly in advance.

J. S. Lamm,
Chief Draftsman, Water Department.

and now . . . . .
the "World's Best" Thru-Flow Cone Valve



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For more than 30 years Golden-Anderson has been known as the manufacturer of the "World's Best" Automatic Valves.
Now, Golden-Anderson offers you the supreme development in the Thru-Flow or Cone type Valves.
In the new Golden-Anderson Thru-Flow Valve the plug is unseated axially, rotated, and reseated axially, all in one free and frictionless operating movement and drop tight in either open or closed position; this is accomplished by means of a simple and sturdy patented toggle type rotor mechanism which is encased in a bath of oil in the operating head.
The valve itself is just as simple and sturdy, the full flow plug being stronger than pipe of the same area.
And each unit—plug, valve body, operating head, and automatic control—is separate and distinct, designed so that any one unit may be removed from the line without disturbing other units.
The valve stem may be repacked under pressure.
The operating head cylinder stem may be repacked without draining the oil bath.
There are no balance ports, grooves, or cams in the valve. There are no cams, no line contacts, no stem screws in the operating head.
The automatic control may be any one of the several patented mechanisms which have established Golden-Anderson as the manufacturer of the "World's Best" Automatic Valves.
If you want increased efficiency and unfailing automatic control, ask the Golden-Anderson Engineers for further details.

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A MAIN LINE RAILROAD BRIDGE
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Sterling High Duty Internal Combustion Engines

Gas — Gasoline — Diesel Oil Engines

For lifting the span of the Penn. R.R.-Lehigh Valley, Newark Bay Bridge, one Sterling Viking 11, 6-cylinder 425-Hp. 1200 R.P.M. engine and one Viking 11, 8-cylinder 565-Hp. engine, each driving General Electric generators, are employed alternately; the six-cylinder engine is the reserve unit.

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1270 Niagara St., BUFFALO, N. Y. Dept. C-11 *Branch Office* 900 Chrysler Bldg., NEW YORK, N. Y.

Charleston, S. C.

Population	62,700
" served	70,000
Number of services	10,200
" " meters	10,200
" " hydrants	808
Miles of water main	124

The meter rates for water-supply service in the territory supplied by the works of the Water Department of Charleston are as follows:

First	10,000 cu. ft. per quar.	$1.85 per 1,000 cu. ft.
Next	20,000 " " " "	1.70 " " "
"	70,000 " " " "	1.50 " " "
"	200,000 " " " "	1.30 " " "
"	700,000 " " " "	1.10 " " "
"	1,500,000 " " " "	0.95 " " "
"	3,500,000 " " " "	0.75 " " "
"	6,000,000 " " " "	0.55 " " "

All in excess of 12,000,000 cu. ft. per quarter, $0.45 per 1,000 cu. ft., plus 3% gross amount of bill.

Every metered supply service has a quarterly minimum demand charge or rate on each service installed, varying with and based upon the size of service pipe required and installed in accordance with the rules of the Commission. This minimum demand charge is made in accordance with the following schedule and entitles the consumer, without excess charge, to receive the number of cubic feet of water set forth in the table:

Size of Service	Minimum Quarterly Demand Charge	Cu. Ft. of Water Allowed per Quarter for Minimum Charge
¾"	$2.50	1,350
1"	4.00	2,160
1½"	10.00	5,400
2"	20.00	10,880
3"	40.00	22,650
4"	125.00	78,340
6"	200.00	132,700

All applications for water-supply service are made at the executive office of the Commission on a special blank prepared for that purpose. The owner or owners of the premises to be connected, or his or their agent authorized in writing, must sign the application for service pipe and water supply. The Commission lays the service pipe to the curb at the expense of the owner, who makes a deposit of an amount equivalent to the estimate of the exact cost plus 10% for supervision and use of tools. Each separate premise has a separate and distinct service connection, and in no case is more than one premise furnished with service from one connection, except in special cases where the Commission decides that such is impossible or impracticable. An additional minimum quarterly service charge is made for each additional dwelling or tenement containing five rooms or less owned by the same landlord and built in connection on the same or adjoining lots supplied by one service pipe. The additional minimum charge is as follows:

Each house of	three rooms or less	$0.50 per quarter
" " "	four "	1.00 " "
" " "	five "	1.50 " "

All delinquent accounts, including metered water-supply service, may cause the service to be discontinued and the water to be shut off immediately upon the account's becoming delinquent, without notice, and the service is not resumed and the water turned on until the account is paid in full plus the sum of $1 for turning on the supply to each premise shut off.

All private fire protection service is installed by the Commission, which determines the best location and lays the pipe from the street main to a point just inside the wall of the building or building line. The owner is charged the exact cost of labor and materials used in the work, with an addition of 10% to cover supervision and use of tools. The size of pipe is determined by the Commission.

Public fire hydrants are installed by the Commission at its own cost and expense upon receipt of instructions from the Public Authority. The standard fire hydrant or plug has two 2½" hose nozzles and one 4½" steamer nozzle, and a 6" cast iron service pipe from the street main.

Rates for special private fire service based on the size of the connection are as follows:

1"	attachment for fire use only	$15.00 per year
1½"	" " " "	25.00 " "
2"	" " " "	35.00 " "
3"	" " " "	40.00 " "
4"	" " " "	50.00 " "
6"	" " " "	150.00 " "

When this service is used to supply an automatic sprinkler system exclusively, a charge of not more than $50 per year is made.

J. E. Gibson,
Manager and Engineer.

Sandusky, Ohio

Population	24,962
" served	20,000
Number of services	8,420
" " meters	6,735
" " hydrants	500
Miles of water main	77.0

The rates charged for municipal water service in Sandusky, Ohio, are:

First	5,000 cu. ft. or less used per quarter	$1.25 per 1,000 cu. ft.
Second	5,000 " " " " "	1.00 " " " "
Third	5,000 " " " " "	.85 " " " "
Fourth	5,000 " " " " "	.75 " " " "
Fifth	5,000 " " " " "	.65 " " " "

All consumers using 25,000 cu. ft. or more of water per quarter are charged a flat rate of 60c per 1,000 cu. ft.

Statements are rendered monthly to all consumers using 25,000 cu. ft. or more of water per month, and these charges are payable monthly.

The minimum rates charged for water service furnished within the municipality are:

Size of Meters	If Owned by Consumer	
⅝" and ¾"	$ 2.50 per qrt.	$10.00 per yr.
1"	3.25 " "	13.00 " "
1½"	5.00 " "	20.00 " "
2"	7.25 " "	29.00 " "
3"	10.00 " "	40.00 " "
4" or larg.	14.00 " "	58.00 " "
Size of Meters	**If Owned by the City**	
⅝" and ¾"	$ 3.25 per qrt.	$13.00 per yr.
1"	4.50 " "	18.00 " "
1½"	6.75 " "	27.00 " "
2"	9.50 " "	38.00 " "
3"	13.75 " "	55.00 " "
4" or larg.	20.00 " "	80.00 " "

A discount of 10% from the regular rates is allowed to the consumer if the charge for service is paid within 15 days after the receipt of notice of water rent due; but no discount is allowed for special water service.

The special rates below apply to minimum rates for apartment houses.

Meters Privately Owned	
2 to 4 tenants	$ 9.00
4 " 6 "	8.00
6 " 8 "	7.00
8 " 10 "	6.00
Meters City-Owned	
2 to 4 tenants	$11.00
4 " 6 "	9.50
6 " 8 "	8.00
8 " 10 "	6.50

There are no charges for fire hydrants or fire systems.

The following table shows the cost of tapping and installing meters.

Cost of Tapping	
⅝" tap	$ 5.00
¾" "	5.75
1" "	8.25
1¼" "	13.50
1½" "	20.25
2" "	31.50
Cost of Installing Meter	
⅝" meter setting	$21.25
¾" " "	27.00
1" " "	57.00
1¼" " "	79.70
1½" " "	89.60
2" " "	109.40

All meters 1" and larger are required to be set in pits, ⅝" and ¾" meters are placed in tile, and the rates given in the table above include the cost of pits and tile settings.

Charles J. Gremelsbacher,
Superintendent, City Water Works.

Douglas, Ariz.

Population	10,000
" served	10,000
Number of services	2,400
" " meters	2,400
" " hydrants	121
Miles of water main	35.0

The water rates are regulated by city ordinance and at present are a minimum monthly charge of $1.50 for each family served inside the city limits, $2.00 for each family served outside the city limits, and $2.00 for each place of business, which minimum charge entitles the consumer to 5,000 gals. of water. For one person living alone, the minimum charge is $1.00 for 1,000 gals. or less. For irrigation or construction, where no domestic water is used, the minimum charge is 50c for 2,000 gals. or less. For the next 125,000 gals. used in excess of the minimum, the rate is 15c per 1,000 gals., and for all over 130,000 gals. the rate is 10c per 1,000 gals. A deposit of $4.00 is required for service outside the city limits, and no deposits are required in the city. During the months of April, May, June and July, the minimum allowance is 8,000 gals. per month for residences instead of 5,000 gals. per month.

Water bills are payable before the 21st of the month following the date of service, and if not so paid, a penalty of 50c is added and service is discontinued. All water used by the city in any manner whatsoever is furnished free by the Water Department. Hence, there are no hydrant charges.

J. R. Denny,
Superintendent, City of Douglas Water Department.

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Springfield, Ohio

Population	70,000
" served	72,000
Number of services	16,500
" " meters	14,200
" " hydrants	1,300
Miles of water main	168.0

The water rates in Springfield, Ohio, are:

First	500,000 cu. ft.	75c per 1,000	per 6 mos.
Next	166,666 " "	67½c " "	" " "
"	333,334 " "	60c " "	" " "
"	333,333 " "	52½c " "	" " "
All over	1,333,333 " "	45c " "	" " "

The minimum charge is $2 for 6 months' service.

There are no service charges except for frozen meters, when a charge of $1 plus material is made. The services are installed by the Water Department at the cost to the property owner of labor and material, using brass pipe and curb cock. There are no hydrant rentals or charges for private sprinkler systems.

ROBERT E. PRICE.
Superintendent of Water Works.

Akron, Ohio

Population	255,000
" served	250,000
Number of services	53,800
" " meters	55,100
" " hydrants	5,176
Miles of water main	601.0

The metered service rates effective November 1, 1935, and applying to quarterly billing are:

		Rate Per 1,000 Cu. Ft. Gross	Net
First	20,000 cu. ft.	$1.80	$1.60
Next	20,000 " "	1.60	1.50
"	20,000 " "	1.50	1.40
"	20,000 " "	1.40	1.30
"	920,000 " "	1.30	1.20
"	4,000,000 " "	1.10	1.00
"	5,000,000 " "	0.90	0.80
All over	10,000,000 " "	0.70	0.60

Each meter is considered a separate service in applying these rates, except that one consumer with several meters, in the normal-pressure district only, may add together the consumption in excess of 80,000 cu. ft. quarterly through each meter to determine the quantities subject to the $1.20 and lower net rates. When such consolidated quarterly billing is in excess of 15.000,000 cu. ft., the following discounts are allowed:

		Rate Per 1,000 Cu. Ft. Gross	Net
First	10,000,000 cu. ft.	None	None
Next	5,000,000 " "	$0.15	$0.15
All over	15,000,000 " "	0.375	0.375

The following minimum quarterly meter rates are charged according to the size of a meter, the table also showing the quantity of water allowed for the minimum billing.

	Quantity of Water Allowed Cu. Ft.	Minimum Gross	Bill Net
⅝" meter	2,000	$ 3.60	$ 3.20
¾" "	3,750	6.75	6.00
1" "	5,625	10.13	9.00
1½" "	7,500	13.50	12.00
2" "	9,375	16.88	15.00
3" "	13,125	23.63	21.00
4" "	18,750	33.75	30.00
6" "	28,667	49.87	45.00
8" "	49,286	81.93	75.00
10" "	83,333	130.33	120.00

All service connections or pipes for supplying the water from the city mains are installed at the expense of the property owner or person making the application for the connection. The minimum diameter of the service connection and pipe is ¾", and the service pipe from the main to the meter must not be less than the diameter of the tap controlling it. The size and type of connection and size of pipe allowed for services are as follows:

Corporation cock	¾"
"	1"
Gate valve	4" and larger

Width of Street	Services in Unpaved Streets ¾-inch	1¼-inch	Additional in Paved Streets
16 ft. or less	$18.00	$23.00	$20.00
Over 16 ft. & under 40 ft.	20.00	25.00	25.00
40 ft. and under 60 "	25.00	30.00	35.00
60 " " " 80 "	30.00	35.00	45.00
80 " " " 100 "	35.00	40.00	55.00
100 " " " 120 "	40.00	45.00	65.00
120 " and over	50.00	60.00	75.00

METER SETTING CHARGES

⅝" meter setting	$15.00
¾" " "	17.50
1" " "	20.00

The rates for fire protection services are based on the size of the service connection or meter, as follows:

Size of Line or Meter	Service Metered Gross	Net	Service Unmetered* Gross	Net
2"	$2.20	$2.00	$8.80	$8.00
3"	3.30	3.00	13.20	12.00
4"	4.40	4.00	17.60	16.00
6"	6.60	6.00	26.40	24.00
8"	11.00	10.00	44.00	40.00
10"	16.50	15.00	66.00	60.00

*Installations involving detector check-valves shall be billed as an unmetered service.

The largest service allowed for fire or sprinkler systems is 8". The following table shows the sizes of mains and maximum sizes of service allowed.

Size of Main	Maximum Size of Service
10" and larger	8"
8"	6"
6"	4"
4"	1"

Net rates, as given above, apply only on water consumed during the quarter for current bills only, provided the bill is paid on or before the 20th of the month in which the bill is rendered. After the 20th of the month gross rates apply. Net rates do not apply unless all previous bills for water against the account have been satisfied.

W. R. LADUE,
Chief Engineer and Acting Superintendent, Bureau of Water Supply.

Hammond, Ind.

Population	70,000
" served	70,000
Number of services	13,000
" " meters	13,000
" " hydrants	1,278
Miles of water main	200

The schedule of rates for consumers taking water from mains of the Hammond Municipal Water Works became effective January 1, 1924, and are as follows:

First	5,000 gals. per mo.	$0.10 per 1,000 gals.	
Next	5,000 " " "	0.09 " " "	
"	15,000 " " "	0.08 " " "	
"	75,000 " " "	0.07 " " "	
"	400,000 " " "	0.06 " " "	
"	500,000 " " "	0.05 " " "	
All over	1,000,000 " " "	0.04 " " "	

MINIMUM RATE—MONTHLY CHARGE

⅝" or ¾" meter	$ 0.75
1" "	1.50
1½" "	2.00
2" "	4.00
3" "	10.00
4" "	20.00
6" " or over	30.00

Applications for service must be made at the office of the water works before any service will be installed, and a deposit of $5 made for a ⅝" meter or smaller as a guarantee against the non-

¾" service pipe
1¼" " "
4" and larger service pipe

payment of bills for water service, except where the owner of the property is the consumer. Each domestic meter is read every 90 days and billed on the basis of quarterly consumption. All accounts are due and payable within 15 days after the date of such bill, and if not paid within 15 days, a collection charge of 10% is added for delinquency. If the account is not paid within 30 days after the date of the bill, service is discontinued and a reconnection charge of $1 is made when the account is paid.

The city pays to the water works the sum of $50 per year for each public fire hydrant or drinking fountain attached to the mains.

The charge for automatic sprinkler service through a 4" line with a maximum of 700 heads is $60 per year. For each additional 4" line connection on the same premises, $55 per year, and for each private fire hydrant, $50 per year.

L. C. MCCULLUM,
Auditor, Department of Water Works.

Portsmouth, Ohio

Population	47,500
" served	55,000
Number of services	10,816
" " meters	7,273
" " hydrants	686
Miles of water main	85.0

The water rates charged by the Portsmouth Water Works, where billing is quarterly, are as follows:

First	50,000 gals.	@ .25	per 1,000
Next	50,000 "	@ .20	" "
"	4,900,000 "	@ .15	" "
"	5,000,000 "	@ .12	" "
"	10,000,000 "	@ .10	" "
All over	20,000,000 "	@ .08	" "

The minimum charge per month is based on the size of the meter as follows:

Each ⅝" or ¾" meter per mo	$ 1.00
" 1", 1¼" or 1½" meter per mo	2.00
" 2" or 3" meter per mo	4.00
" 4" or 6" meter per mo	5.00
" 8" meter per mo	6.00

The tapping fees are as follows: ¾" service, $20.00; 1" service, $36.50; 2" service, $75.00; no 2½" or 3" taps are installed; the 4" tap is billed under time and material. A meter for a ¾" service is billed at $17.00.

F. E. SHEEHAN,
City Manager.

Water Rates to be concluded in December. Reprints available in January

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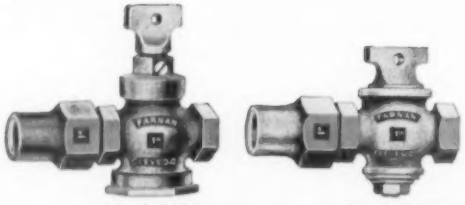

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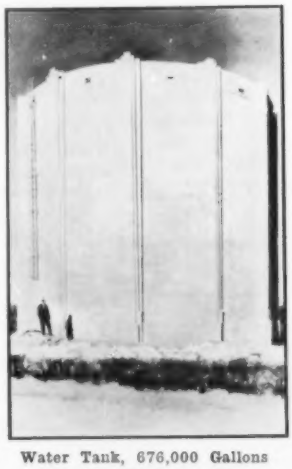

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ZONING and PLANNING NOTES

From Data collected
by the Zoning Committee
of New York
(233 Broadway)

Board of Appeals, Review of Decisions—Garage, Public Convenience and Necessity

CONNECTICUT.—*Burr v. Rago*, 180 Atl. 444 (Supreme Court of Errors, June 27, 1935).—This is an appeal by property owners near a plot of land at the corner of Marshall Street and Farmington Avenue, known as 300 Farmington Avenue. This plot is located in a business district. On three occasions between January 13, 1931, and September 18, 1934, the Board of Appeals heard an application for a permit for the erection of a motor-vehicle service and gasoline filling station on the plot, denying it on the first two applications, and granting it on the third.

This appeal calls in question the power of the Board to reconsider its decision. A zoning board of appeals acts in a quasi-judicial capacity. It is an appellate tribunal, and its decisions are reached only after the presentation of evidence deemed to warrant such action. The power to reconsider should not be interpreted with too much refinement, nor should it be hedged about with technicalities. Nevertheless, it is not an arbitrary power, and its exercise should be granted only when there is justification and good cause. Thus, while the board is invested with a liberal discretion to decide whether to reverse a former decision, it is a discretion which is subject to review in the courts, and it must be reasonably and legally exercised, and based upon evidence which fairly sustains the decision. It should not ordinarily be permitted to review its own decisions and revoke action once duly taken. Otherwise there would be no finality to the proceeding, and the result would be subject to change at the whim of members or due to the effect of influence exerted upon them, or other undesirable elements tending to uncertainty and impermanency.

To justify a board of appeals in reconsidering its previous decision, there must be, subsequent to the former decision, a material change in circumstances. Ordinarily, the changes should be in the locality in question. In this case the changes were too far distant to militate against the objections formerly interposed to the granting of the permit. The Board therefore was not justified in reconsidering its former decision.

Public convenience and necessity need not be shown as a basis for a permit under a zoning ordinance to erect a motor-vehicle service and gasoline station.

EDITOR'S NOTE.—In connection with the law as stated in the last paragraph above, the New York case of *Young Women's Hebrew Association v. Board of Standards and Appeals*, in our Notes for May, 1935, in some of its aspects, may be interesting.

Zoning—Notice

GEORGIA.—*Jennings v. Laggs*, 178 S. E. 282 (Supreme Court, January 19, 1935).—The Georgia law authorizing the city of Atlanta to pass zoning ordinances provides that "the mayor and general council may provide for the manner of public notice by requiring the posting by the petitioner or petitioners of a reasonable placard or sign giving notice to the public of such proposed amendments." This act is mandatory, the word "may" being equivalent in this case to "must" or "shall"; for wherever, as here, the public interest is concerned, or the rights of third parties are affected, or the thing to be done is for the sake of justice or for the public benefit, the word "may" is to be so construed.

A newspaper advertisement published twenty days before the date set for a hearing on a proposed amendment of the zoning regulations, without designating the place at which the hearing would be held, is an insufficient compliance with the requirement of the ordinance that notice of the time and place of the hearing shall be published ten days before the hearing.

Zoning and Private Restrictions

MASSACHUSETTS.—*Snow v. Van Dam*, 197 N. E. 224 (Supreme Court, July 29, 1935).—The zoning of land for business could not operate to remove existing private restrictions confining the land to residential use.

EDITOR'S NOTE.—Much to the same effect are the following cases in our previous Notes: Illinois,—*Dolan v. Brown*, Notes for May, 1930; Massachusetts,—*Nelson v. Town of Belmont*, Notes for April, 1931; New York,—*Haber v. Paramount Ice Corporation*, Notes for January, 1933; Iowa,—*Burgess v. Mazarian*, Notes for February, 1933; California,—*Eaton v. Klimm*, Notes for May, 1933; Indiana,—*Bachman v. Colpaert Realty Corporation*, Notes for June, 1935. See also: New York,—*Cohen v. Rosevale Realty Co.*, Notes for January, 1924, and *Bove v. Donner—Hanna Coke Corporation*, Notes for July, 1932; and California,—*Vowinckel v. N. Clark and Sons*, Notes for November, 1932.

The zoning ordinance allowing certain uses in a given locality does, however, at least tend to show what the character of that locality is: Massachusetts,—*Tortorella v. H. Traiser and Co.*, in Notes for March, 1934, with cases cited in Editor's Note thereto. See also Iowa case of *Kirk v. Mabis*, Notes for May, 1933, and Editor's Note thereto.

Extension of Non-Conforming Use—Board of Appeals, Variance, Procedure

NEW YORK.—*Matter of Retoske (Boettger and others)*, Supreme Court, Westchester County, reported in *New York Law Journal*, August 2, 1935.—For many years prior to the adoption of the zoning ordinance of the city of Yonkers, the New York Guild for the Jewish Blind has maintained and conducted an asylum for the afflicted in a district where the erection of a building for such a use, under the ordinance, is not allowed. The Guild, being desirous of protecting those under its charge from the hazards of fire, arranged to erect a modern fireproof dormitory, its intention being to demolish the old, dilapidated building now used as a dormitory. The Guild applied to the Building Inspector of the city of Yonkers for a permit for the erection of the building, and it was issued. Residents in the district in which the Guild buildings are located appealed to the Board of Appeals, claiming that the issuance of the permit was illegal, due notice of this appeal being given.

At the hearing the Guild claimed that the permit was legal; and if it was not legal, asked the Board of Appeals, in its discretion, to vary the ordinance and grant it the right to erect the building. The Board denied the appeal from the issuance of the permit, and also, in its discretion, granted the variance. From this decision, the other residents in the district in question appealed to this Court, which holds:

That the issuance of the permit was illegal; the only ground upon which it could be issued in a district where the erection of the building in question was contrary to the terms of the ordinance was the extension of an existing nonconforming use; and the erection of a new building was not such an extension, authorized by the ordinance.

And that, at that hearing, the Board of Appeals had no right to grant a variance. The ordinance requires notice of a hearing on a variance. The only notice in this case was of a hearing with regard to the legality of the permit. This was not a notice of a hearing with regard to a variance; the Court saying in justification of its position in reference to this point:

"I am of the opinion that where a landowner secures an illegal permit and an appeal is taken solely upon the question of the legality of the permit, the Board of Appeals is without power to grant a variance, where the application for such a variance is contained in the answer of the landowner and no public notice is given of any intention to ask for a variance. The public was entitled to rest upon the assumption that the permit as granted was illegal, and it was likewise entitled to notice that the landowner would seek a variance. One is a cold, legal proposition; the other is vested in the discretion of the Board, to be exercised after a full hearing and consideration of the facts presented, and, if the spirit of the ordinance is to be preserved, such discretion is to be exercised sparingly."

L.F.C.

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THE CITY'S LEGAL RIGHTS AND DUTIES

Conducted by A. L. H. STREET, Attorney at Law

Accidents

City held liable for injury to motorist due to unlighted island in intersection (Kansas City, Mo., Court of Appeals: *Metz v. Kansas City*, 81 S. W. 2d, 462).

City held not liable for injury to motorist on arterial highway for failing to maintain barrier at turn where highway markers indicated turn (United States Circuit Court of Appeals, Fifth Circuit: *Thompson v. City of Houma, La.*, 76 Fed. 2d, 793).

City held not liable for negligence of employees operating truck in cleaning streets and storm sewers (Oklahoma Supreme Court: *Spaur v. City of Pawhuska*, 43 Pac. 2d, 408).

City held liable for accident due to defective condition of viaduct over railroad, despite duty of railway company to "maintain" viaduct (California Supreme Court: *Bosqui v. City of San Bernardino*, 43 Pac. 2d, 547).

Bond Issues

City held not liable to paving bond holders for neglect of county officers to enforce payment of assessments (South Dakota Supreme Court: *Grand Lodge v. City of Winner*, 259 N. W. 278).

Holders of light and water bonds held to have no lien against property for the acquisition of which the bonds issued nor the income thereof (Florida Supreme Court: *State v. City of Sebring*, 155 So. 669).

Taxpayer held not entitled to enjoin bond issue on grounds of disqualification of city officers nor because city did not exercise statutory right to require bidder for bonds to make deposit with bid (Okhaloma Supreme Court: *Hughes v. City of Cushing*, 39 Pac. 2d, 13).

Business Regulations

Ordinance forbidding conduct of mercantile business in same building where same dealer sells liquor upheld (Florida Supreme Court: *Tittsworth v. Akin*, 159 So. 779).

Ordinance for barber shop closing between 6:30 P. M. and 8 A. M. held void (California Supreme Court: *Ganley v. Claeys*, 40 Pac. 2d, 817). Similar decision (Washington Supreme Court: *Patton v. City of Bellingham*, 38 Pac. 2d, 364).

Civil Service

Appointment as detectives of men not policemen held violative of seniority rights of inactive policemen (Kentucky Court of Appeals: *Marcum v. Boggs*, 80 S. W. 2d, 36).

Contracts

City held liable for delay, interference and work changes imposed on engineer designing and supervising water plant erection (United States Circuit Court of Appeals, Sixth Circuit: *Bay City v. Frazier*, 77 Fed. 2d, 570).

City held empowered to contract to indemnify railway company against liability to third parties resulting from permitting city to construct sewer through the railroad's lands. Whether the contract would cover liability for the company's negligence is undecided (Wisconsin Supreme Court: *H. Hohensee Construction Co. v. Chicago, Milwaukee, St. Paul and Pacific Railway Co.*, 261 N. W. 242).

Council Proceedings

Charter requirement for majority vote of council to adopt measure held satisfied by vote of majority of existing councilmen, disregarding vacancy (Minnesota Supreme Court: *State v. Hoppe*, 260 N. W. 215).

Depositories

National banks can pledge assets to secure public deposits only in states where state banks can do so (United States District Court, Eastern District of New York: *Hellawell v. Town of Hempstead*, 10 Fed. Supp. 771).

Drainage

City held liable for damage to land through failure to properly care for drainage of street (Minnesota Supreme Court: *Bush v. City of Rochester*, 255 N. W. 256).

Finances

Legislature held powerless to authorize expenditures for the benefit of real estate corporations under the guise of municipal government (Florida Supreme Court: *State v. Town of Lake Placid*, 158 So. 497).

City held entitled to pledge excess revenues of light and water plants for municipal hospital, but general revenues needed in performing statutory governmental functions could not be pledged for hospital or airport (Arkansas Supreme Court: *Johnson v. City of Dermott*, 75 S. W. 2d, 243).

Food Regulations

Louisville ordinance regulating milk plants upheld except as to provision forbidding outside plants to furnish milk within city unless specially permitted by health officer (Kentucky Court of Appeals: *Grant v. Leavell*, 82 S. W. 2d, 283).

Health Measures

Ordinance requiring all sewage to be drained into municipal sewers or sanitary septic tanks upheld (Kentucky Court of Appeals: *Nourse v. City of Russellville*, 78 S. W. 2d, 761).

City held empowered to regulate plumbing and license plumbers, but ordinance prohibiting Durham system in buildings under three stories held void (Washington Supreme Court: *City of Spokane v. Latham*, 42 Pac. 2d, 427).

Taxicab Regulation

Ordinances regulating taxicabs by requiring indemnity bonds, etc., upheld (Alabama Supreme Court: *City of Mobile v. Farrell*, 158 So. 539. Mississippi Supreme Court: *Brogan v. Hosey*, 161 So. 690). Similar ordinance held void (North Carolina Supreme Court: *State v. Gulldege*, 179 S. E. 883).

Time Computation

Ten-day period relating to certification of initiative petition for election held to include Monday where tenth day fell on Sunday (Ohio Court of Appeals, Columbiana County: *Ohio Power Co. v. Davidson*, 195 N. E. 871).

Traffic Regulations

Deputy sheriff held not exempt from parking ordinance in parking car for personal convenience. No "divinity doth hedge a deputy sheriff" (New York Court of Appeals: *People v. Schwartz*, 192 N. E. 588).

Ordinance forbidding driver of power-driven vehicle for hire to be accompanied any one other than passenger held void as being unreasonable (South Carolina Supreme Court: *State v. Grant*, 177 S. E. 148).

Water Supply

City held liable if it wrongfully cut off supply of water to consumer (St. Louis, Mo., Court of Appeals: *Whitsett v. City of St. Clair*, 80 S. W. 2d, 696). Award to truck gardener for loss due to wrongfully cutting off of water supply upheld. Water may not be shut off for non-payment of outlawed bill for water actually used (California District Court of Appeal: *Schultz v. Town of Lakeport*, 44 Pac. 2d, 683).

Delay in shutting off water as delinquency continued held no waiver of city's statutory right to discontinue service (Washington Supreme Court: *Moran v. City of Seattle*, 38 Pac. 2d, 391).

City's contract to furnish water to adjoining city held properly terminated on reasonable notice, requiring proof of reasonable value to support recovery for water subsequently furnished; injunction against discontinuance of service held improper (Wisconsin Supreme Court: *City of Milwaukee v. City of West Allis*, 258 N. W. 851).

Workmen's Compensation

Relief worker for township held covered by Compensation Act, although not paid by township (Pennsylvania, Court of Common Pleas, Schuylkill County: *Hubick v. Supervisors*, 26 Munic. Law Rep. 36).

Worker employed by town held covered by Workmen's Compensation Act, although paid out of funds received from Reconstruction Finance Corporation (North Carolina Supreme Court: *Mayze v. Town of Forest City*, 176 S. E. 270).

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You can carry on your various construction and maintenance projects with unabated energy if properly equipped with Littleford Heating Equipment to combat winter temperatures.

Public service departments, when equipped with Surface Heaters, Tool Heaters, Heating Torches, Concrete Heaters, Water Heaters and Salamanders, can have plenty of heat wherever needed.

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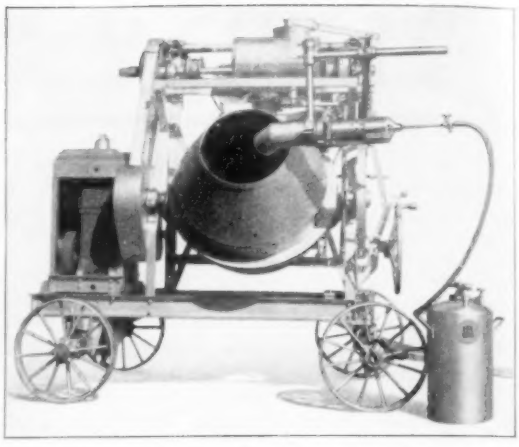

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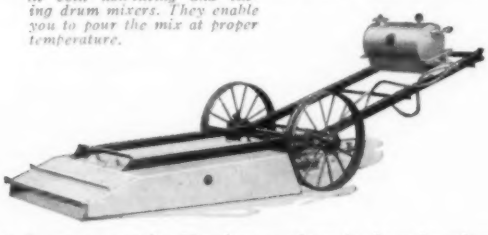

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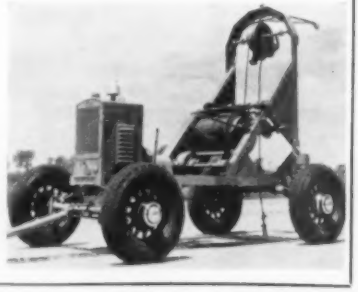

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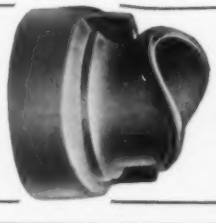

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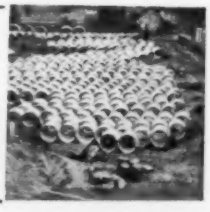

MUNICIPAL AND CIVIC PUBLICATIONS

Prices quoted do not include postage, unless so stated

A Story of Progress Made Possible by Taxes

Under this title Memphis, Tenn., presents its highlights of progress in the recent years of change and crisis—1928-1935. "Facing the depression with an expanded territory and a greater population than ever before, with new needs to meet on decreasing funds, we have emerged with our finances sound, our vital governmental services unimpaired, and a record of progress which would have been notable even in times of prosperity." These accomplishments, attained through taxes that are "not only an investment, but social insurance against disease, crime, and unrest," are described in detail, with many illustrations, in 36 quarto photo offset pages. (Apply to D. C. Miller, City Clerk, Memphis, Tenn.)

Taxation

A Special Report (No. 9) of the New York State Tax Commission bears the title "State Grants-in-Aid," and has been prepared by Russell John Hinckley, Ph.D., New York State Fellow in Taxation at Cornell University, and Research Investigator, New York State Tax Commission. It is stated that the chief intention of the report is to find some balance between centralization and local autonomy, and to view the subvention system as a whole, rather than as a mass of separate and unrelated grants-in-aid. This naturally involves, first, a study of the theory and purposes of grants-in-aid; also of objections to such aid by the state, and also of the teachings of experience in the various states. Fiscal, educational, highway, and health and welfare grants-in-aid, and aids in relation to the reorganization of local government are considered. 221 pp., tables, bibliography, index. (Apply to Charles H. McTigue, Sec., State Tax Commission, State Office Bldg., Albany, N. Y.)

Conflicting Taxation: The 1935 Progress Report of the Interstate Commission on Conflicting Taxation.—By the Research Staff of the Commission; James W. Martin, Research Director. Published jointly by the American Legislators' Association and the Council of State Governments, Drexel Ave. and 58th St., Chicago, Ill. 214 photo offset pp.

At least seven tax bases are relied upon by both Federal and state governments as major sources of government, creating a muddle of fiscal individualism which involves five major evils: tax competition between the Federal Government and the states; interstate tax competition; overlapping and conflicting state claims to taxing jurisdictions; avoidance of certain types of state taxation under the protection of the Interstate Commerce Clause; and uneconomic division of tax-administering functions. Four major proposals are most vigorously urged to eliminate tax conflicts, indicated under the headings of centralization, Federal credits, segregation, and intergovernmental comity, each of which is examined at length, with tabular statements of past yields and possible yields.

Water Supply

Qualités de l'Eau et Moyens de Correction.—By Dr. Edouard Imbeaux, former Professor of Applied Hydraulics, l'Ecole des Ponts et Chaussees, France; member, Supreme Council of Public Health of France, and Supreme Council for the Supervision of Water Supplies to the Minister of War. Published by Dunod, 92 rue Bonaparte, Paris, France. 1935. 823 pp., besides double-page inserts. Illustrated. 295 francs.

In this volume on "Qualities of Water and Means of Correction," the author, long a member of the American Water Works Association, presents for the benefit of French readers, the best experience in American water-supply work; and, of interest to American engineers, an extensive compilation of similar information from sources outside the United States and not commonly found in our literature. The treatise is designed to be broadly informative to those interested in problems of water purification and the control of water quality.

Municipal Finance

"A Manual for Village Treasurers in Wisconsin" has been prepared by Kenneth Wackman, of the University of Wisconsin, as a FERA project, and issued by the League of Wisconsin Municipalities. It is not exhaustive, but aims to present the minimum of good financial practice, and outlines the duties of a village treasurer as set forth in the Wisconsin statutes. October, 1935. 19 mimeographed sheets, with inserted forms. 75c postpaid; free to member municipalities. (Apply to the League, 114 N. Carroll St., Wisconsin, Wis.)

City Purchasing

The University of Texas has published "A Purchasing Manual for Texas Cities," by Lyndon E. Abbott, Assistant in the Bureau of Municipal Research. It is issued as Municipal Studies, No. 4, and as Study No. 13 of the Bureau of Research in the Social Sciences; also as Bulletin No. 3528 of the University, July 22, 1935. The plan of the manual is to state a principle or an essential step in purchasing, following it with an explanation of the proposition and a description of the practice in the Texas cities studied. 120 pp. (Apply to The University of Texas, Austin, Texas.)

Civil Service

"Approaches to the Measurement and Reward of Effective Work of Individual Government Employees" is a monograph analyzing the subject of employee rating, with particular reference to the New York City civil service, based on studies of existing service rating systems, prior service rating attempts in New York City, and the researches, writings and experiments of some authorities in this field. It was prepared by Samuel H. Ordway, Jr., Commissioner, and John C. Laffan, Clerk in Charge of Ratings, New York City Civil Service Commission, and published by the National Municipal League as a supplement to the *National Municipal Review* for October, 1935. 48 pp. (Apply to the League, 309 E. 34th St., New York.)

Recreation

A "Study of the Leisure-Time Problem and Recreation Facilities in Cincinnati and Vicinity" has been made by Eugene T. Lies, Special Representative of the National Recreation Association, for the Public Recreation Commission of Cincinnati, Ohio, and published in two volumes (paper-bound) by the Cincinnati Bureau of Governmental Research, as Report No. 65. August, 1935. 383 mimeographed sheets. A comprehensive, detailed review of the work of the Commission since its establishment in 1926, as to use of outdoor and indoor properties and the program of activities; an unbiased, critical study and an estimate of future needs. The entire Library situation is examined and evaluated, and the whole problem of leisure in the city and its environs is studied. $1.00 plus postage. (Apply to the Cincinnati Bureau of Governmental Research, Gwynne Bldg., Cincinnati, Ohio.)

Housing

"Housing Under Capitalism," by Sidney Hill, pamphlet No. 46 published by International Pamphlets, 799 Broadway, New York, presents an analysis of the aims, promises and accomplishments of the Administration in dealing with the problem of housing, reviews European examples of efforts at solution, and leads, in the discussion, to the author's radical conclusion that "the only solution of the housing question, as well as all other social and economic questions which would benefit the masses of people is the appropriation of all the social means of life and labor by the workers themselves." The pamphlet then proceeds to a statement of steps to be taken pending the "abolition of capitalism," and of the terms or conditions under which a program of construction may be carried out. 40 pp. (Apply to the publishers.)

Structural Materials

The American Society for Testing Materials published in September, 1935, its volume of A.S.T.M. Standards on Preservative Coatings for Structural Materials (paints, varnishes, lacquers and paint materials) prepared by Committee D-1. Its divisions are: Specifications; Methods of Testing; Definitions. 387 pp. $1.75. (Apply to the Society, 260 S. Broad St., Philadelphia, Pa.)

Noise Abatement

"Ordinances, By-Laws and Regulations of Foreign Cities Providing for the Suppression or Abatement of Noise from Various Causes"; including motor vehicles, street traffic; building operations; street railways; steam railroads; parades, bands and other demonstrations; peddlers, hawking or crying of wares; whistles, bells and gongs; animals and fowls; delivery wagons and trucks; factories, and radio loud speakers, phonographs and similar instruments. Prepared by Frederick Rex, Librarian, Municipal Reference Library, Chicago. September, 1935. 59 mimeographed sheets. (Send 25c in stamps to the Municipal Reference Library, 1005 City Hall, Chicago, Ill.)

Modernization Credit for Housing

The Federal Housing Administration has released a booklet entitled "Loans up to $50,000," showing how merchants, manufacturers and all owners of business property, also executives of schools, colleges, hospitals and orphanages, may avail themselves of credit for improvement and re-equipment of their buildings. Both the text and the illustrations in this pamphlet of 24 quarto pages present strong arguments for seizing the opportunity offered for modernization credit loans for types of structures and properties eligible under the amendment to the National Housing Act. The regulations governing the banking operations involved are made plain, principally through a series of questions and answers. (Apply to Federal Housing Administration, Washington, D. C.)

Municipal Reports

Continuing its work for effective municipal reporting, the Local Finances and Reports Committee of the Vermont State Chamber of Commerce has issued in quarto pamphlet form the remarks made before the Annual Conference of the New England Tax Officials Association, on September 20, 1935, at Providence, R. I., by James P. Taylor, Secretary of the State Chamber. It bears the title, "Apologies of the Present Day Publican—Modernized Public Reports," and contains 8 pages of forceful, graphic presentation of material on the subject. (Apply to the Vermont State Chamber of Commerce, Burlington, Vt.)

Other Reports Received

BERKELEY, CALIF.—"Civic Affairs." Annual Report, City Manager, 1934-35. 64 pp.

BUFFALO, N. Y.—Condensed Financial Report, Department of Audit and Control, year ended June 30, 1935. 65 quarto pp.

CAMBRIDGE, MASS.—Annual Report, Water Board, 1934. 48 pp.

HARRISBURG, PA.—"High Spots." Annual Report, Chamber of Commerce, 1935. 12 pp.

HUNTINGTON PARK, CALIF.—Annual Report of City, year ending June 30, 1935. 28 pp.

PASADENA, CALIF.—Annual Report, City Manager, 1934-1935. 45 pp.

PASADENA, CALIF.—Annual Report, City Controller, year ended June 30, 1935. 48 pp.

PHILADELPHIA, PA.—Annual Report of Mayor, containing department reports, 1934. 655 pp.

SOUTHINGTON, CONN.—Annual Report of Town, year ending August 31, 1935. 120 pp.

WEST BEND, WIS.—Annual Report of City, 1934. 34 pp.

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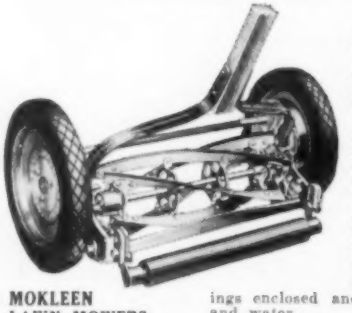

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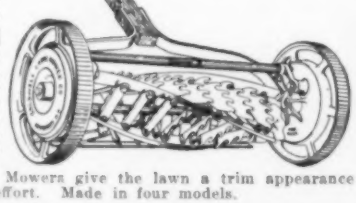

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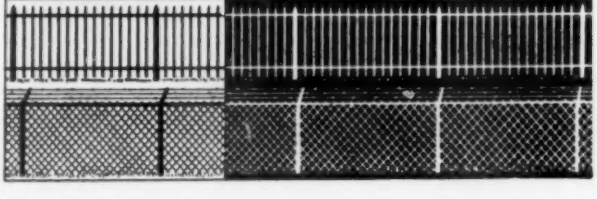


CONVENTIONS—WHEN AND WHERE

(Figures in parentheses following the name of the convention city indicate the estimated attendance other than local)

NOVEMBER 4-6.—DURHAM, N. C.
North Carolina Sewage Works Association. North Carolina Section of the American Water Works Association. Joint convention. Secretary, M. F. Trice, State Board of Health, Raleigh, N. C.

NOVEMBER 7-8.—ROANOKE, VA.
American Water Works Association—Virginia Section. Annual conference. (Hotel Roanoke.) Secretary, H. W. Snidow, Department of Health, 601 State Office Building, Richmond, Va.

NOVEMBER 11.—BOSTON, MASS.
National Pedestrians' Association. Annual meeting and convention. Executive Secretary, M. S. Smith, 1468 Broad Street, Providence, R. I.

NOVEMBER 12.—BOSTON, MASS.
International Institute of Transport. Annual meeting and convention. President, Charles Davis, 1468 Broad Street, Providence, R. I.

NOVEMBER 13.—BOSTON, MASS.
National Highway Traffic Association. Annual meeting and convention. Executive Director, Arthur H. Blanchard, 1468 Broad Street, Providence, R. I.

NOVEMBER 14-15.—ASBURY PARK, N. J.
New Jersey State League of Municipalities. Annual convention. (Berkeley-Carteret Hotel.) Executive Secretary, S. S. Kenworthy, Trenton Trust Building, Trenton, N. J.

NOVEMBER 14-15.—MANSFIELD, OHIO. (200)
Ohio State Police Chiefs Incorporated. Annual convention. Secretary, E. G. Krause, 1020 Guardian Building, Cleveland, Ohio.

NOVEMBER 15-16.—CHICAGO, ILL. (400)
American Automobile Association. Annual meeting. (Palmer House.) Executive Vice-President, Ernest N. Smith, Pennsylvania Avenue at 17th Street, Washington, D. C.

NOVEMBER 15-16.—ASBURY PARK, N. J.
New Jersey Health and Sanitary Association. Annual meeting. (Berkeley-Carteret Hotel.) Secretary, Dr. Edward Guion, Box 418, Atlantic City, N. J.

NOVEMBER 18-19.—TULSA, OKLA. (150)
Oklahoma Municipal League. Annual convention. Secretary, Frank C. Higginbotham, Norman, Okla.

NOVEMBER 20-22.—EDMONTON, ALTA. (250)
Alberta Association of Municipal Districts. Annual convention. Secretary, E. Pinchbeck, Spruce Grove, Alta.

NOVEMBER 22-23.—COLUMBIA, MO. (100)
Missouri Water and Sewerage Conference. Annual conference. Secretary-Treasurer, H. M. Bosch, Jefferson City, Mo.

NOVEMBER 25-26.—PROVIDENCE, R. I.
National Association of Civic Secretaries. Annual convention. Secretary, Miss H. Marie Dermitt, Hotel William Penn, Pittsburgh, Pa.

NOVEMBER 25-26.—PROVIDENCE, R. I.
National Municipal League. Annual conference on government. Secretary, Howard P. Jones, 309 East 34th Street, New York.

NOVEMBER 25.—PROVIDENCE, R. I.
Proportional Representation League. Annual meeting. Executive Secretary, George H. Hallett, Jr., 309 East 34th Street, New York.

DECEMBER 3-5.—WINNIPEG, MAN. (400)
Union of Manitoba Municipalities. Annual convention. Secretary, John Spalding, Miniota, Man.

DECEMBER 5-6.—WASHINGTON, D. C.
Highway Research Board of the National Research Council. Annual meeting. Director, Roy W. Crum, 2101 Constitution Avenue, Washington, D. C.

DECEMBER 9-12.—MIAMI, FLA. (400)
American Association of State Highway Officials. Annual convention. Executive Secretary, W. C. Markham, 1220 National Press Building, Washington, D. C.

JANUARY 9-11.—WASHINGTON, D. C.
American Engineering Council. Annual meeting. Executive Secretary, Frederick M. Feiker, 744 Jackson Place, Washington, D. C.

JANUARY 15-17.—NEW YORK.
American Society of Civil Engineers. Annual meeting. Secretary, George T. Seabury, 33 West 39th Street, New York.

JANUARY 20-22.—WASHINGTON, D. C.
American Society of Landscape Architects, Inc. Annual meeting. Executive Secretary, Bradford Williams, 9 Park Street, Boston, Mass.

JANUARY 20-24.—CLEVELAND, OHIO.
American Road Builders' Association. Annual Road Show. Engineer-Director, Charles M. Upham, 938 National Press Building, Washington, D. C.

JANUARY 20-24.—LAFAYETTE, IND.
Purdue Road School. Annual school. Address: Prof. Ben H. Petty, Engineering Extension Department, Purdue University, Lafayette, Ind.

JANUARY 27-31.—CHICAGO, ILL.
American Society of Heating and Ventilating Engineers. Annual meeting. (Palmer House.) Secretary, A. V. Hutchinson, 51 Madison Avenue, New York.

JANUARY 28-31.—NEW YORK.
American Institute of Electrical Engineers. Annual winter convention. National Secretary, H. H. Henline, 33 West 39th Street, New York.

FEBRUARY 6.—RICHMOND, VA. (200)
Virginia State Chamber of Commerce. Annual meeting. Managing Director, LeRoy Hodges, 708 Grace-American Building, Richmond, Va.

FEBRUARY 12-14.—ATLANTIC CITY, N. J.
Association of Highway Officials of North Atlantic States. Annual convention. (Hotel Ambassador.) Secretary-Treasurer, A. Lee Grover, Secretary, State Highway Commission, Trenton, N. J.

FEBRUARY 17-20.—CHICAGO, ILL.
National School Supplies and Equipment Association. Annual convention. (Palmer House.) Executive Secretary, J. W. McClinton, 176 West Adams Street, Chicago, Ill.

FEBRUARY 18-20.—ANN ARBOR, MICH.
Conference on Highway Engineering—University of Michigan. Annual convention. Secretary, R. E. Morrison, University of Michigan, Ann Arbor, Mich.

FEBRUARY 22-27.—ST. LOUIS, MO. (9,000)
National Education Association—Department of Superintendence. Annual convention. Executive Secretary, Sherwood D. Shankland, 1201 16th Street, N. W., Washington, D. C.

FEBRUARY 25-27.—CHICAGO, ILL.
American Concrete Institute. Annual convention. (Palmer House.) Secretary, Harvey Whipple, 641 New Center Building, Detroit, Mich.

MARCH 23-25.—LEXINGTON, KY.
American Water Works Association—Kentucky-Tennessee Section. Annual meeting. Executive Secretary, F. C. Dugan, 532 West Main Street, Louisville, Ky.

JUNE 8-12.—LOS ANGELES, CALIF.
American Water Works Association. Annual convention. (Hotel Biltmore.) Secretary, Beekman C. Little, 29 West 39th Street, New York.

JUNE 22-26.—PASADENA, CALIF.
American Institute of Electrical Engineers. Annual summer convention. National Secretary, H. H. Henline, 33 West 39th Street, New York.

A Desirable Convention Trend

More Joint Meetings and Fewer Jaunt Meetings

THE idea of holding joint conferences of organizations having parallel or overlapping interests is not a new one. For several years past, in such fields as political science, social welfare, public health and public safety, groups of affiliated or independent organizations have met together annually, for national or state conventions, to their common advantage. In other fields of special concern to readers of THE AMERICAN CITY this trend is spreading.

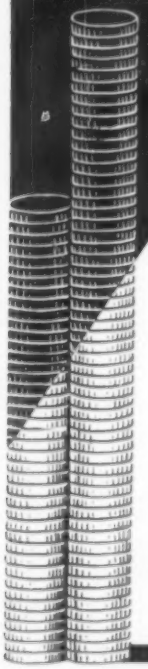
A successful recent example was the simultaneous gathering in Knoxville last month of the annual conferences of the International City Managers' Association, the American Municipal Association, the Municipal Finance Officers' Association, and the National Association of Tax Assessing Officers. The well-organized programs provided an excellent balance of round-table discussions, separate meetings of the several organizations and joint conferences of two or more of them. Other joint conferences in October included those in Cincinnati of the American Society of Municipal Engineers and the International Association of Public Works Officials; in Schenectady, N. Y., of the New York State Sewage Works Association and the New England Sewage Works Association; and in Washington of the Joint National Conference on Housing, at which, under the leadership of the National Association of Housing Officials and the American Planning and Civic Association, many national, state and local groups conferred among themselves and with representatives of the various Federal agencies concerned with the housing problem.

This month will witness in Providence the joint annual conference of the National Municipal League, the National Association of Civic Secretaries and the Proportional Representation League. Among joint state conferences of the month will be those in Durham of the North Carolina Sewage Works Association and the North Carolina Section of the American Water Works Association; in Roanoke, Va., of the second joint annual conference of the Virginia Section of the American Water Works Association and the Virginia Sewage Works Association; and in Asbury Park of the New Jersey State League of Municipalities and the New Jersey Health and Sanitary Association. This Asbury Park meeting will also bring together several other state groups concerned with municipal and county administration—the New Jersey state associations of municipal engineers, of attorneys, of clerks, of tax assessors and collectors, of building inspectors, of shade tree experts, of recreation commissioners, and of overseers of the poor.

Meetings such as these are in the public interest, not only in economizing time and traveling expenses but in broader horizons, better content of programs, and more adequate exchange of ideas and experience than would be possible were each group to flock by itself.

The trend is towards more joint meetings and fewer jaunt meetings. More strength to the movement!

All money spent on useless light is wasted!



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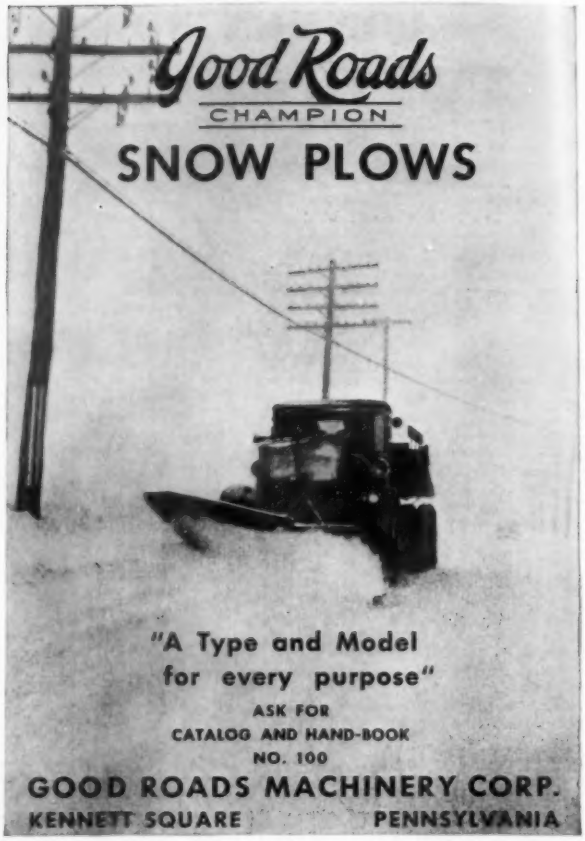

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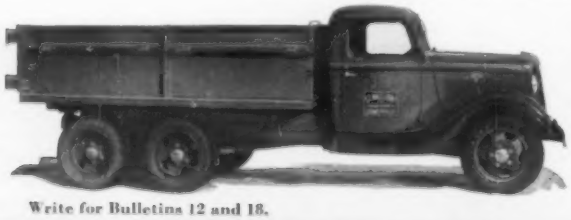
KENNETT SQUARE PENNSYLVANIA

WOOD HYDRAULIC **BODIES for garbage and rubbish collection**

One of 25 new garbage collection units for City of Cleveland. Capacity 9 cu. yd. with 3 cu. yd. hinged extension sides. Watertight construction with double acting watertight tailgate.

Wood L-10 rubbish body with F-4 hydraulic hoist, 4½ cu. yd. capacity with 2 cu. yd. hinged extension sides; watertight construction and barndoor type tailgate.



Write for Bulletins 12 and 18.

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Common Barberry — New Truehedge Columnberry

WHY consider this old time, bygone hedging when you may have Columnberry hedging like this. Both are average two-year-old plants, untrimmed. **INVESTIGATE**—This new hedging can be trimmed to any desired formal shape. Immediate hedge effects obtainable.

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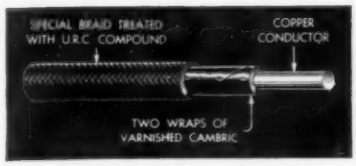
NEWS AND ILLUSTRATIONS

Items of Interest to City, Town and County Officials, and Others Concerned with the Economical Construction and Efficient Operation of Public Improvement Undertakings



THE NEW CAMBRIC WEATHERPROOF LINE WIRE

A New Weatherproof Line Wire

A new weatherproof line wire with varnished cambric and a weatherproof braid treated with U.R.C. compound has recently been announced by the General Electric Co., Schenectady, N. Y. This new line wire may be used for any applications where the conventional double- or triple-braid weatherproof wire is now used. Its outstanding field is in overhead distribution; primary circuits of 2,300/4,000 volts, and secondary circuits of 110/220 volts.

This line wire was developed because of the demand for better insulating quality than is found in the conventional weatherproof wire. Improved insulation resistance under all weather conditions means less leakage loss from the copper conductor to the supporting structure. The layers of varnished cambric increase the dielectric strength, with prevention of danger if a high-voltage line should fall on house services; greater safety to linemen and to the public; lowered cost of supporting structures, since lines may be erected closer together; prevention of arcing when two wires swing together; elimination of grounds when lines come in contact with trees, poles, or houses; and better service because of the above advantages. The braid on this new varnished-cambric line wire is tough and will withstand abuse for a long time. Even after the braid is destroyed, the layers of varnished cambric continue to give excellent line protection.

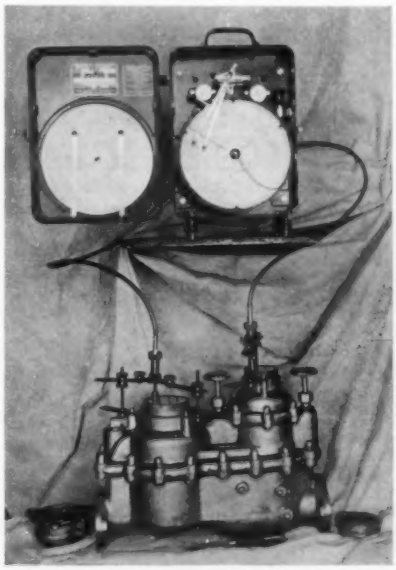
The conductor is either solid or stranded, depending on the size and requirements. The varnished cambric on this new line wire is of the same quality used in the construction of high-voltage cables for underground power transmission. It does not readily absorb moisture and can be used in aerial locations where the lines are not continuously wet.

The over-all covering is a heavy cotton braid, carefully treated with high-melting-point weatherproof U.R.C. compound. U.R.C. finish consists essentially of a high-melting-point compound combined with slate dust. The melting point of the compound is considerably higher than that of ordinary weatherproof compounds. The slate dust provides a smooth surface, so that water readily rolls off and leaves the cable dry.

Charles B. Rose Retires from American-La France

The American-LaFrance and Foamite Corporation, Elmira, N. Y., has announced that Charles B. Rose, who has been its President since April, 1927, and during whose administration the reorganization of the company has reached a point where it has been definitely approved by the Court, has decided to retire as an executive of the new company other than in an advisory capacity. The Board of Directors acquiesced in this decision with regret.

Pending consummation of the reorganization plan, no definite statement of the personnel of the new management is available, but it is expected that Wallace J. Childs, who is now Executive Vice-President, will become President of the new company.



A METER-MASTER RECORDING UNIT ATTACHED TO A HERSEY COMPOUND METER

A Rate Recorder for Water Meters

The Meter-Master, which can be attached to any single or compound meter and which makes a chart showing the rate of flow for either 6 or 24 hours, has been developed by Brainard & Hatch, 246 Palm Street, Hartford, Conn. The meter train need not be removed, and its record is not interrupted. The Meter-Master weighs only 17 pounds, so that it is readily portable, and it can be attached to any meter in five minutes, making it a particularly serviceable instrument in checking rates of flow in various lines and giving a definite imperishable record. It contains no batteries.

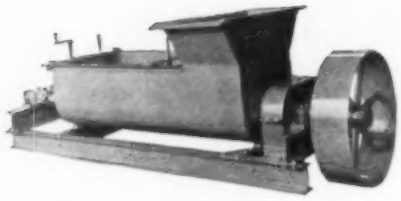
If a customer complains that his bill is too high, stating that it was impossible that he used so much water and that the meter must be incorrect, it is only necessary to attach a Meter-Master for 24 hours and then show the customer a complete record of the amount, rate and time of flow. Thus, if any of his equipment or fixtures are using more water than they should, he can be shown where the trouble is. The permanent charts are made on a Bristol recorder.

A Starting Unit for Gas and Diesel Engines

A new fast-working single-stage air compressor for starting gas and diesel engines, capable of filling a tank of 6 cubic feet capacity up to 200 pounds pressure in 5 minutes or up to 250 pounds in 9½ minutes, is offered by the Cooper-Bessemer Corporation, Mt. Vernon, Ohio, and Grove City, Pa. This unit, known as the GX3A, runs equally well on gas and on gasoline. It is a self-contained combination engine and compressor of moderate cost. Ford parts are used largely, pistons, piston rings, connecting rods, connecting-rod bearings, engine valves, and many smaller parts being thus obtained. Both the power and compressor cylinders, cast in one piece, are water-jacketed. The power-cylinder head, which is a separate casting, is of the automotive type, water-cooled, and carries a spark plug only. A Ford Model B gasoline carburetor and an adjustable gas mixing valve are furnished as standard equipment, also a rotary-type magneto with impulse coupling for hand starting. A full description of this starting unit may be secured from the manufacturers at Mt. Vernon, Ohio, or Grove City, Pa.

Pipe Production Doubled

An announcement has been received from Johns-Manville (New York City) that since the first of September the production of Transite pipe at its Waukegan, Ill., factory has been doubled, and indications are that the output after the beginning of the new year will be three times that of the past summer. The increased demand is attributed largely to the growing popularity of this type of pipe as supply and distribution mains in water systems. Transite pipe is manufactured from asbestos and portland cement combined under high pressure. It is a comparatively new product in this country, having been used for only a little more than five years. In Italy, however, it has been manufactured for more than twenty years.



THE BONNOT MACHINE FOR PREPARING SLUDGE FOR FERTILIZER

A Sludge Disintegrator and Mixer

A new type of disintegrator and mixer for fertilizer and sludge has been announced by the Bonnot Co., Canton, Ohio. Only a slight adjustment is needed to convert it from a disintegrator to a mixer. Operating as a disintegrator, it will break down 6- to 8-inch lumps of sludge containing as high as 40 per cent moisture into a ½-inch product or smaller. Operating as a mixer, several materials can be run through at once with chemicals, water or dry mix, and a thorough mixing and blending obtained.

The operation of this unit is continuous and its construction is rugged. It is built with a structural steel base thoroughly braced, and with the hopper and main body made of heavy welded steel construction. The gears are steel with machine-cut teeth and are completely enclosed. It can be driven by either flat belt, V-belt or gear motor.

A New Highway Guard

Tyton highway guard offers an easy solution for making highways safe at danger points. It is sold nationally by the Western Cataphote Co., Toledo, Ohio. This Tyton guard is made of materials selected on the basis of strength and long life, with ease of erection and economy in installation taken into consideration. Automatic adjustment maintains proper tension at all times, regardless of seasonal temperature variations. Damaged sections can be easily repaired or replaced in any part of the rail.

The Tyton highway guard can be built to any length and to conform to any road. Sixteen-foot special carbon steel panels are mounted on posts by means of leaf springs. These panels are bumper high, and instead of stopping the vehicle out of control, guide it along the guard until control can be regained. The rolled edges of the panels provide added strength and stability, reduce the tendency to twist and buckle when hit, and eliminate all sharp, dangerous cutting edges. The spring mountings increase the resiliency of the guard and provide clearance between the posts and the face of the panel, keeping the vehicle away from the posts. Snagging of the vehicle on the guard-rail panel is prevented by an overlapping of the telescoped panels in the direction of travel, and by the use of flat-round-head bolts tying the panels together. Spring tension end mountings give further resiliency to the entire guard.

The Automatic Magnetite Filter for Sewage Treatment Plants

The magnetite filter is usually placed on top of a sedimentation tank for the removal of suspended solids by straining out the light solids and minute impurities which cannot be removed or settled out by sedimentation. It is used in all types of sewage treatment plants, including chemical precipitation, plain sedimentation, activated sludge, trickling filter and Imhoff plants. It consists of a bed of magnetite iron ore, the pieces being about the size of fairly coarse sand and about 3 inches thick, supported on a fine mesh of non-magnetic phosphor bronze wire.

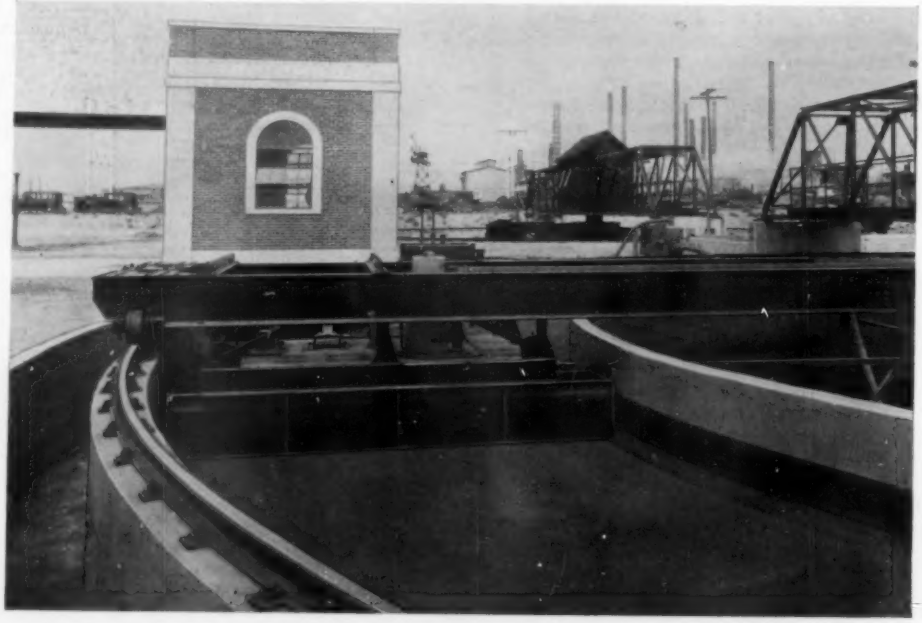
After the heavier solids have been allowed to settle out, the sewage passes through the screen and the ore in an upward direction. The fine solids in the sewage are caught between the particles of ore. As the spaces between the grains become partly choked with the solids, it is necessary to wash the filter. This is done by a cleaner consisting of a bottomless box or caisson which holds a centrifugal pump and a solenoid or electro-magnet which passes slowly over the ore.

This box contains a cross-section of the filter bed but, as the length of the bed is great compared to its width, less than two per cent of the filter area is covered by the box. As the box or cleaner passes slowly over the filter bed, the solenoid is alternately magnetized and demagnetized, so that a narrow strip of ore layer is alternately jerked off the wire screen and allowed to fall back. The ore, being held magnetically by the solenoid while being washed, is not carried away by the wash water. During this process, the small centrifugal pump causes the sewage from beneath the wire screen to rush through the moving ore. This effectively cleans the portion of ore covered by the box, and when the box has completed a circuit, the whole bed is cleaned. The wash water containing the impurities from the ore is caught up by the pump and passed back for retreatment or other disposal.

For automatic operation a float switch is used to start the cleaner as the sewage backs up slowly in the tank when the filter beds become partly blocked with solids. The cleaner continues to work until the filter bed is clear, when the sewage level drops and the float switch cuts off the cleaner, which remains idle until started up again by the action of the switch. The change of level which operates the float switch is predetermined and is usually 2 to 4 inches.

The magnetite filter for sewage is a product of the Filtration Equipment Corporation, 10 East 40th Street, New York.

1935-36 Municipal Index, now being made ready for the press, will contain a complete analysis of the Sewer Rental Laws of the 48 states.



THE MAGNETITE SEWAGE FILTER INSTALLATION AT PERTH AMBOY, N. J., SHOWING THE AUTOMATIC CLEANER AND BED OF ORE BEFORE THE CLARIFIER WAS PLACED IN OPERATION

A Real Contribution to Water-Works Literature

Under the heading "How Would You Like to Be Without It?" the Ford Meter Box Co., Wabash, Inc., has published a folder which has been used to advantage by a very large number of water departments as an envelope stuffer with bills to educate the consumer to the value of what he receives when his faucet is opened at home. We are reproducing the two inner text pages of this folder below, because we believe it should have the widest distribution possible among water department and water company officials. Thus far some 200 water works have requested anywhere from 100 to 70,000 of these folders, which are still available from the Ford Meter Box Co., Wabash, Ind., at a delivered price of $2.50 per thousand. As stated above, they contain no advertising whatsoever except a note in small type on the fourth page, "Prepared by the Ford Meter Box Co., of Wabash, Inc., for the industry it has the honor to serve," and the folders are sold at cost to water departments and water companies.

A 2-Ton Utility Roller for Light Road Work

The C. H. & E. 2-ton tandem roller, recently announced by the C. H. & E. Mfg. Co., 120 East Mineral Street, Milwaukee, Wis., is designed for all types of light rolling work, including highway shoulders, bituminous road patching, sidewalks and similar work. It is a small and compact unit for easy handling in narrow and restricted places which are inaccessible to large rollers. This machine will operate between street-car tracks and close up to curbings.

The roller is simple and sturdy in construction. Operation is similar to that of an automobile, with automotive steering mechanism, foot brake pedal and foot throttle control of the engine. It has one speed forward and one reverse.

The weight of the unit is 3,000 pounds with the rear roller empty, or 4,000 pounds with the rear roller filled with water. The front roller is 24 inches wide and 24 inches in diameter, and the rear roller, 34 inches wide and 36 inches in diameter. The over-all length is 7 feet 8 inches and the width 3 feet 9 inches. Power is furnished by a Le Roi 4-cylinder radiator-cooled engine or a Wisconsin 4-cylinder air-cooled engine.

American - LaFrance Re-organization Under Federal Act

Under date of November 15, 1934, the American - LaFrance and Foamite Corporation applied to the Federal Courts for a reorganization under an Act popularly called the Federal Court of Re-organization, Act 77-B. After numerous hearings, a small modification was made in the Plan which did not affect it materially, after which the Special Master reported to the Federal Judge in regard to the re-organization. Under date of July 29, 1935, a hearing was held before the Federal Judge, and he confirmed the recommendations of the Special Master without any modifications whatever and signed an order that the Plan be unconditionally approved and confirmed.

"Pure water is the best of gifts that man to man can bring." —Lord Neaves.

The other day when I asked my little girl what water is she said, "It's what comes out when I open the faucet." This set me to thinking about how much all of us take for granted our water supply systems and the excellent service they give.

We have to be deprived of some things to realize what they mean to us. I have been thinking about our water works and what things would be like if it were to be permanently discontinued, if water no longer came from the faucet. The pictures aren't so rosy.

First, I would have to line up a source of water, for I could live but a few days without it. I would have to drill a well, collect rain water, or carry from a stream, pond or spring. At the best it would be a lot of expense or a lot of effort.

I would have to arrange to dispose of the sewage of my household. Again I run into expense and unpleasant conditions which are not nice to talk about.

It would be considerable more trouble to keep clean. Maybe the historic tub on the kitchen floor would have to be revived.

There would be no definite assurance that I would not be exposed to typhoid fever and other water-borne diseases which were such a scourge only a generation ago.

If my house caught on fire there would be much less chance of saving it and the other houses nearby. My family would not be so safe nor my sleep so peaceful.

Because of increased fire danger my insurance rates would jump, probably more than my total water bill. This is one advantage of water service most of us never think about.

In dry weather my lawn would turn brown and my garden would wilt for lack of water. It would be harder to wash my car, my front walk and even my dog.

After all, maybe we have let many years of "water from a faucet" dull our appreciation of a service which is so vital to our civilization and to our ability to live together in comfort, health and safety.

COMMON SENSE AND HUMOR ARE COMBINED IN THIS WORTH-WHILE FOLDER, WHICH IS FURNISHED TO WATER OFFICIALS AT COST BY THE FORD METER BOX CO.

Western Electric Police Radio gives added protection to 35,000,000 people!

More than one fourth of the people in the United States live in communities protected by Western Electric Police Radio. This equipment enables police to increase the number of arrests—reduce the number of crimes. ¶ With Western Electric ultra high frequency radio, headquarters and patrol cars maintain *2-way* communication—a great advance over the 1-way broadcast of alarms to patrols. ¶ *Your* community deserves the added protection of Western Electric 2-way Police Radio. Full details from Graybar Electric, Graybar Bldg., New York.

Western Electric

Distributed by GRAYBAR *Electric Co.*
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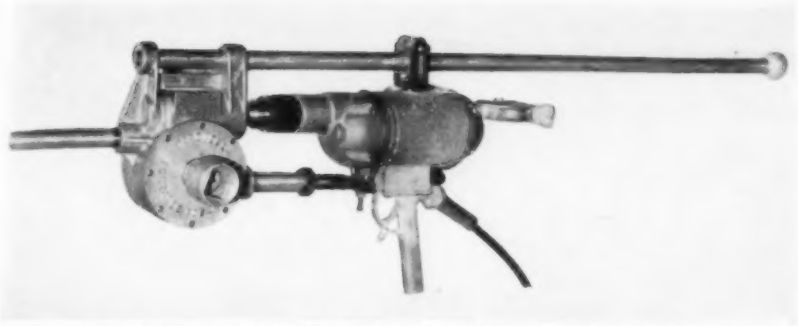
POLICE RADIO TELEPHONE EQUIPMENT

During November we hope you will remember to mention THE AMERICAN CITY



THE BARDWELL POWER UNIT FOR OPENING AND CLOSING VALVES

Portable Power Drive for Gate-Valve and Sluice-Gates

A new portable power drive by means of which one man can use electric power to turn or crank any manually operated gate-valve, wet tapping machine pipe threader sluice-gate or winch which normally requires four men has been announced by W. C. Lipe, Inc., Syracuse, N. Y. This Bardwell portable power drive uses any standard electric drill as its power unit. The drill mechanism is direct-connected to a heavy-duty worm gear mounted on ball bearings driving an output shaft made to take standard wrench sockets. The weight of the Bardwell portable power drive is 36 pounds plus the weight of the ½-inch or ¾-inch drills which are used for light loads and heavy loads respectively.

The long handle shown provides a 4-foot leverage and is usually held by the man operating the device, or allowed to work against a stop, such as the tailboard of the service truck, or other immovable object. A double-end shaft makes the unit reversible, and arrows on the body indicate the direction of rotation.

The normal output of the device is 420 foot-pounds. The long handle or torque bar is used to give the leverage, and the short bar or handle is used to hold the unit so that the operator gets the "feel" of the valve. An electric drill is very responsive to changes in load and "sings a different tune" at various speeds, so that an operator quickly learns just what is happening in the valve stem. This machine operates at 7 to 14 revolutions per minute, which is an ideal speed for closing gates against pressure. Any modern electric drill may be readily attached by the use of one of three bushings which are furnished with the device.

A Self-Propelling Sewer Cleaner for Use in Bends and Curves

The self-propelling Junior Ferret turbine, made by the Turbine Sewer Machine Co., Milwaukee, Wis., is much shorter than the regular model and is designed especially for the sewer department which finds it necessary to clean curves and bends. It is used for the removal of roots, sand, gravel, chemical deposits, and all obstructions within several hundred feet of a manhole. It is also used for cleaning dead ends, and lines from catch-basins to manholes, and for clearing frozen inlets. It is not adjustable, and is best adapted for use in sewers from 6 to 12 inches in diameter.

When there are sewers to be cleaned, the Ferret is coupled to a fire hose and fed into the sewer line, preferably working upstream. One powerful stream of water from the nozzle of the machine precedes the Ferret, but most of the water is deflected sharply rearward, propelling the machine forward and washing out stoppages which have been cut loose by the whirling cutting blades. The Ferret will develop 3 horsepower at the cutting knives at 60 pounds water pressure, and requires a minimum operating pressure of 50 pounds at the machine.

Snow-Plows and Snow Data in New Catalog

Good Roads Machinery Corporation, Kennett Square, Pa., has just issued a new, unusually attractive catalog, No. 100, covering its complete line of snow-plows, with organization suggestions and Weather Bureau data.

Gibney Joins Pittsburgh Equitable

William J. Gibney, former Vice-President of Bingham & Taylor Corp., Buffalo, N. Y., has joined the sales force of the Pittsburgh Equitable Meter Co. and its subsidiary, the Merco Nordstrom Valve Co., Pittsburgh, Pa. Mr. Gibney will operate from the Buffalo office.

High-Speed Sewage Pump

A non-clogging pump for handling sewage at high speeds and against high heads has been developed by the Morris Machine Works, Baldwinsville, N. Y. The new design permits the use of standard high-speed motors which are more compact and less expensive than the lower-speed motors required for older types of sewage pumps.

The unit is completely self-contained, with heavy-duty double ball radial and thrust bearings supported on a substantial extension of the hub disc so that both bearings are maintained in alignment with the pump body. An exclusive feature is the floating suction ring which is designed so that solid particles will not interfere with its effectiveness as a seal between the suction and pressure parts of the pump. Efficiencies above 85 per cent have been obtained in several installations.

ONE OF THE NEW MORRIS NON-CLOGGING SEWAGE PUMPS

THE SELF-PROPELLING JUNIOR FERRET TURBINE

No matter where the figures fall

the community PAYS for Good Street Lighting whether it gets it or not

You can't alter facts or figures . . .

Accidents result in a definite economic loss. Some, less fortunate souls, pay with their lives. Others pay through taxes, insurance and medical expense.

The close relationship between the cost of street lighting and the cost of night traffic accidents is dramatically portrayed by a recent survey by the National Bureau of Casualty and Surety Underwriters. This survey reveals that cities with the lowest per capita street lighting cost have the highest night fatality rate per 100,000 population . . . *and vice versa!*

For instance, this survey considered both winter and summer night accidents so that factors other than visibility would not over-influence the results. In 1932 with a per capita street lighting cost of $1.09 the excess economic loss per capita was $0.93. While in 1933, when per capita street lighting cost was reduced to $0.93 the economic loss per capita increased to $1.07. In other words . . . *the community pays for good street lighting whether it gets it or not!*

Westinghouse, largest maker of complete lighting equipment, provides a complete line of street lighting equipment unsurpassed in durability and efficiency. Westinghouse also maintains an advisory staff of skilled street lighting engineers who are always at your service. For complete details write, Westinghouse Electric & Mfg. Co., Lighting Division, Edgewater Park, Cleveland, Ohio.

WHEN YOU THINK OF *Lighting* THINK OF

Westinghouse

Rock Asphalt Institute Elects Officers

George W. Rapp, Chief Engineer of the Ohio Valley Rock Asphalt Co., has been elected President of the newly-formed Kentucky Rock Asphalt Institute at its organization meeting held in the Institute offices at the Marion E. Taylor Building, Louisville, Ky. Walter Areta, Vice-President of the Natural Rock Asphalt Corporation, was elected Vice-President, and W. N. Bosler, Assistant Sales Manager of the Kentucky Rock Asphalt Co., will serve the Institute as Secretary and Treasurer.

The following will serve as the first Board of Directors: Rodman Wiley, Sales Manager, Kentucky Rock Asphalt Co.; Phil McGovern, Sales Manager, Ohio Valley Rock Asphalt Co.; and G. C. Appleton, Chief Engineer, Natural Rock Asphalt Corporation. A. H. Hinkle, former Deputy Highway Commissioner of Ohio and later Superintendent of Maintenance for the Indiana State Highway Commission, was appointed Executive Director.

The purpose of the Institute is to place at the command of officials and private citizens reliable information and cooperation as to where, when and how both natural and processed Kentucky rock asphalt can be used to economical advantage in the surfacing of streets, highways, park roads, driveways and other places where a smooth, resilient, nonskid surface is desired.

Making Sewage Sludge Marketable

Properly conditioned digested sewage sludge when dried on outdoor or glass-covered sludge beds usually breaks up into fairly large compact masses when removed from the beds. In order to prepare this sludge for effective use as a fertilizer and readily available humus for lawns and gardens, it is necessary to break it up into the consistency of a coarse meal. The Royer Sludge Disintegrator, made by the Royer Foundry & Machine Co., Kingston, Pa., disintegrates the sludge containing moisture up to 56 per cent without choking the machine, thus making it possible to remove sludge from the beds at an earlier time. The Model B-2 machine has a capacity of 2 yards per hour and is operated by a ¾-horsepower motor at 1,750 rpm. It weighs 585 pounds. The average size of the distintegrated sludge is 3 to 4 millimeters, and the largest size is under ½-inch.

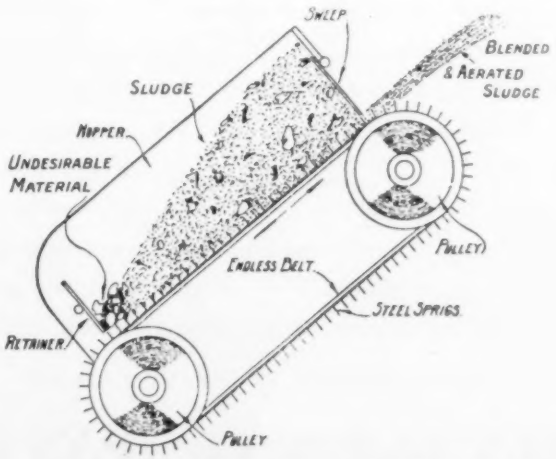
If desired, the machine will mix fortifying chemicals with the sludge as ground, so that it will bring a higher price when sold in the market.

Sludge is shoveled into the hopper of the machine, where it comes in direct contact with the "sprigs" or teeth on the belt. As the belt travels toward the discharge end, the teeth comb or rake the bottom surface of the sludge in the hopper into granular form, the grains dropping into the pockets formed by the teeth. The belt, sloping at 45 degrees, throws the material 6 to 10 feet onto a pile, thus aerating it and further mixing the disintegrated and mixed material.

High-Pressure Pumping Engine Order Given to Mack

Constituting the largest order for high-pressure pumping engines ever placed by New York City, Russell Forbes, Commissioner of Purchase, has awarded a contract to Mack-International Motor Truck Corporation, of New York, for 20 1,000-gallon double combination fire pumpers under new and stringent specifications. These specifications require pumping performance from 33-1/3 per cent to 91 per cent more severe than those of the National Board of Fire Underwriters.

Deliveries of the pumpers will start in 90 days and will bring the total number of pieces of Mack fire apparatus purchased since 1912 by the New York Fire Department to 187. The pumpers are equipped with 2,000-gallon deck pipes direct-connected with the pumps. The hose bodies accommodate 2,200 feet of hose, and carry two scaling ladders, nozzle holder, pike poles, axes and the usual miscellaneous equipment carried on a pumper of this type.



SKETCH SHOWING THE ACTION OF THE BELT IN BREAKING UP AND MIXING SEWAGE SLUDGE IN THE HOPPER OF THE ROYER DISINTEGRATOR

Republic Steel Awarded First Prize

Republic Steel Corporation, Youngstown, Ohio, was awarded first prize by judges at the 13th Annual Conference of the National Industrial Advertisers Association held at Pittsburgh on September 18, 19 and 20 for the most outstanding advertising campaign of the year in the field of metals.

S. A. Knisely, Advertising and Sales Promotion Manager of Republic Steel, states that the prize-winning campaign was created and placed by G. M. Basford Co., industrial advertising agency with offices in New York and Pittsburgh.

The convention program included an address by C. W. Ruth, Assistant Advertising Manager of Republic, on the subject, "Shall Exhibits at Shows Be Used?"

New Compound for C. I. Pipe Joints

In order to overcome the objections of engineers to backfilling over water lines which are still leaking, because the jointing material permits minor early leaks, The Atlas Mineral Products Co., Mertztown, Pa., has announced an improvement in its Mineralead. The new jointing compound is called "TeGul-Mineralead" and was developed at the Mellon Institute of Industrial Research, University of Pittsburgh, and is now manufactured by The Atlas Mineral Products Co. under license from the Texas Gulf Sulphur Co., Inc. The material is produced by the addition of a specially processed olefine polysulphide to a compound which is basically the same as Mineralead.

This material has three times the elasticity of ordinary compounds and twice the resistance to mechanical shocks. Resistance to thermal shock is also said to be increased 20 times. Since increased weight and speed of traffic are bound to increase traffic vibration in and beneath pavements, the manufacturer feels that the added elasticity of this compound will be advantageous.

TeGul-Mineralead comes in 10-pound ingots, a size and weight easy to handle, ship and melt, and it is impervious to moisture if stored outdoors, is clean and not subject to deterioration. It melts and pours easily and is claimed to be tougher than other lead substitutes. Neither calking nor deep bell holes are required. It has a tensile strength of approximately 600 pounds per square inch. A test cylinder 2 inches in diameter and 4 inches long has a crushing or compression strength of 5,000 pounds per square inch and a modulus of rupture of approximately 1,500 pounds per square inch.

INSIST ON GOOD STREET-LIGHTING GLASSWARE

SATISFACTION COMES ONLY FROM PROPER DESIGN

STREET-LIGHTING glassware, to be thoroughly satisfactory, must successfully meet three tests—appearance, strength, and efficiency. It takes a lot of experience to produce glassware like this—a lot of experience in both manufacture and carefully engineered design.

A fine-appearing ornamental globe—Gleason-Tiebout No. 123 alabaster rippled, with canopy

For instance, study the ripples in Gleason-Tiebout globes. These ripples are necessary to give pleasing, sparkling light—with just the proper diffusion. But in no way do these ripples weaken the glassware; nowhere do they present a path along which the globe might crack. Or again, consider the fact that Gleason-Tiebout globes are made of *laminated* glass—a thick crystal-clear glass on the outside to give strength and protection; a thin but very effective diffusing layer inside. Gleason-Tiebout glassware is made to meet the exacting specifications of General Electric engineers. These engineers will be glad to assist you in planning installations that will meet every requirement.

BETTER LIGHT BETTER SIGHT

GLEASON-TIEBOUT GLASS COMPANY GT-35

99 COMMERCIAL STREET, BROOKLYN, N. Y.

Mention THE AMERICAN CITY—it helps.

NEW SNOW-PLOWS FOR FORD AND CHEVROLET

New Snow-Plows for Light Trucks

A new line of plows, built to match the power output of trucks in the Ford and Chevrolet class, has just been announced by The Austin-Western Road Machinery Co., Aurora, Ill. These plows are reported to be carefully designed and fabricated in order to secure better balance and greater strength, and they are curved to handle a maximum volume of snow with a minimum expenditure of power. All excess power-consuming weight has been avoided to increase truck speed, to prevent injury to the front of the truck, and to permit easy and quick attachment or removal of the snow-plows as desired.

The three types of plows are the V-type, the reversible straight blade type, and a one-way tapered blade. The three plows can be used on the same frame and are interchangeable. Other features available on these plows include rubber tires, caster wheels, safety spring release, and means to adjust the pitch and plowing angle of the blades.

Hersey Celebrates Fiftieth Anniversary

A partnership formed to conduct a general machine shop business 78 years ago by Walter E. Hawes and Charles H. Hersey resulted in the formation of the Hersey Manufacturing Co., which fifty years ago placed the first Hersey water meter on the market. In its early days this company built several marine engines and also designed and built the first self-propelled fire engine in this country.

In 1871 the Hersey granulator and cube sugar machines were invented by Charles H. Hersey, and today this machinery is used in every country of the world where refined sugar is made. In 1885, the Hersey Manufacturing Co. of South Boston, Mass., was incorporated and entered the water meter field, under the direction of James A. Tilden, one of the best-known meter designers in the country.

This business since its inception has always been controlled by one family and has been built on true New England traditions, with a firm foundation of careful and skillful workmanship, using only the best available materials. Walter A. Hersey is now President of the Company.

National Distributor for Guard-Rail Made In Two Types

The Western Cataphote Co., Toledo, Ohio, has been appointed national distributor for Tyton guard-rail and Berloy plate guard-rail, made by the Berger Manufacturing Co., Division of Republic Steel Corporation, Canton, Ohio.

THE PRESENT EXECUTIVE OFFICES AND PART OF THE MAIN PLANT OF THE HERSEY MANUFACTURING CO., SOUTH BOSTON, MASS.

A Pair of Traffic-Line Markers

Two new traffic-line markers which will paint lines on any kind of hard surface and are suitable for applying any color paint and also hot or cold asphalt, have been announced by the Municipal Supply Co., South Bend, Ind. In both machines, the "Hand Marker" and the "Wheel Marker," the paint feeds by gravity.

The Hand Marker carries 3 quarts of paint in its seamless steel tubing handle, while the Wheel Marker has a capacity of 5 gallons and is made of heavy sheet steel. The brushes for both machines are of black China bristles with a two-row brush in front for cleaning and a four-row brush in the rear for applying the paint. The bristles are sewed into removable hardwood blocks with asbestos separators between the rows. This brush makes a standard 4-inch stripe. The brush holders are malleable casting, machined to hold the removable brush blocks and self-adjusting side plates, which produce a straight-edge stripe.

On the Wheel Marker, the chassis is a structural steel frame with 10-inch disc type wheels and a swivel caster forward, all equipped with 1¼-inch cushion rubber tires. The control on the Wheel Marker is offset, permitting the operator to walk at one side of the stripe. A grip lever on the right handle operates the paint supply valve.

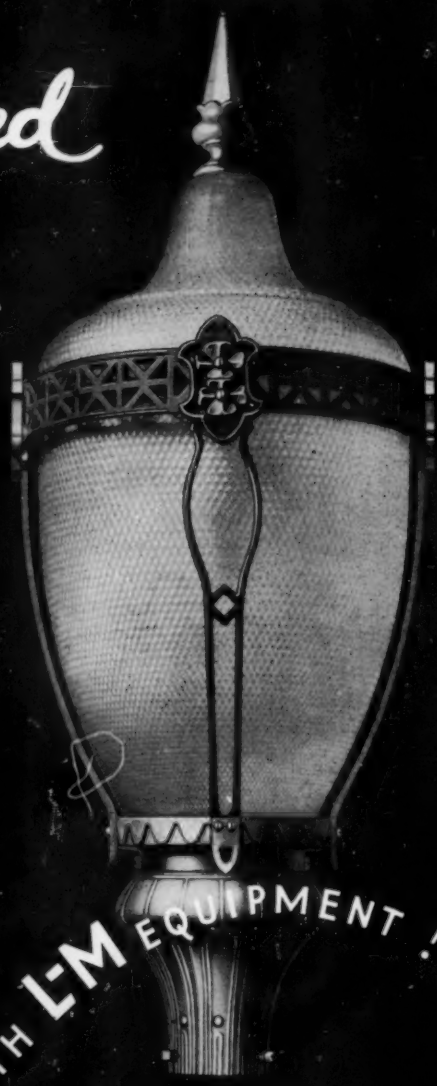
THE "WHEEL MARKER" FOR PAINTING TRAFFIC LINES ON HARD PAVEMENTS

Everything you need in street lighting

No matter whether you plan on installing a complete Whiteway system or modernizing your present installation, you will find everything you need in the L-M line.

L-M Street Lighting Equipment includes an extensive line of cast iron, pressed steel, concrete and wood Standards, a large variety of Luminaires, mounting Brackets, Transformers and all other Accessories required by the job.

Consult the L-M Catalog and call in the L-M Illuminating Engineer.



The OLYMPIAN SR. LUMINAIRE

BETTER LIGHT BETTER SIGHT WITH L-M EQUIPMENT !

The STATE SR.

The CRYSTALITE

The AVALON SR.

LM

LINE MATERIAL Co

SOUTH MILWAUKEE, WISCONSIN, U. S. A.

When you write for that catalog, kindly mention THE AMERICAN CITY

Outdoor Lighting

A Section of *The American City*
Devoted to the Lighting of Streets, Highways, Bridges, Airports, Athletic Fields and Parks, and the Floodlighting of Public Buildings

An Outstanding Street-Lighting Installation That Nobody Regrets

It Cost the City of Easton, Pa., Nothing and Is Incentive for Continually Improving Store Lighting

IN FRONT OF THE NEW CITY HALL

THE boulevard lighting system on the main business street of the city of Easton, Pa., is of such outstanding quality that it serves not only as a successful advertisement of the town, but also as a full-scale model street-lighting display for use by the electric company in its sales work among other municipalities in the vicinity.

The Metropolitan Edison Co. practically gave the system to the city. The company paid all cost of equipment and installation. All the town has to do is to pay the bills for current, which for the city-wide system have been as follows:

1930	$50,577
1931	52,400
1932	53,000
1933	55,337
1934	44,406

Thus it appears that here is a case where the utility did not bite the city. In the three years 1930-32, prior to the new installation, the city averaged $52,000 per year for lighting its streets. In the two years 1933-34, with the new installation, the city averaged $50,000 per year, and last year actually paid 14½ per cent less than in the darker years.

Did the city bite the utility? Clearly not, on the evidence of the utility itself. The new system was the result of a powerful selling job performed by the Metropolitan Edison Co., through its division lighting director H. E. Dickson, before the City Council at a dozen meetings. A ten-year plan for progressively improving the lighting of the city was worked out and accepted several years prior to 1932. When in 1931-32 it was decided to lay a concrete pavement on Northampton Street, the electric company urged that this was an economic opportunity to install the ultimate of the plan on this thoroughfare, to which the Council gave consent when the company agreed to assume all costs and to allow a rate reduction that would help offset the cost of additional current.

The drop in the 1934 bill was due to another rate reduction and to smaller lamps in certain residential areas. Norman A. Peil, Director of Public Safety, says that, in his opinion, if the people had to decide the question of whether to have or not to have this boulevard lighting system, they would decide in favor of the system *even if it added half a mill to the tax rate.*

Safety Achieved

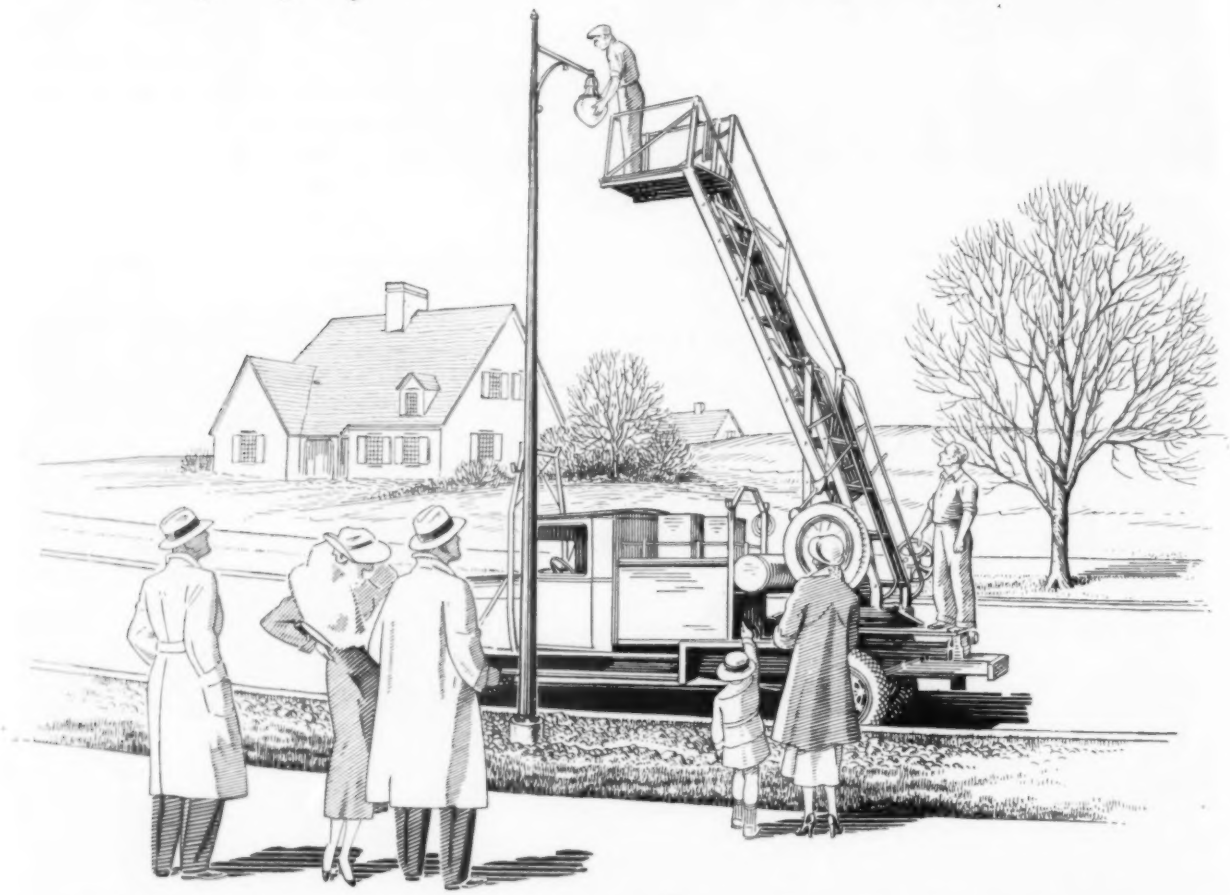
Northampton Street, the paramount business avenue of Easton, is also a state highway cutting straight through the city from the Delaware River to Bethlehem and Allentown. It carries a tremendous volume of through traffic, including a heavy proportion of trucks. The regular traffic of the Eastonites themselves is augmented not only by this fast flood of non-stop-over vehicles, but also by visitors from a radius of 20 miles and a population of 75,000. An additional traffic complication of the first order is furnished by a small circle (Center Square) in the heart of the city. All traffic on Northampton Street must make the half-circle in order to continue on this street, or must take it for 90 degrees or 270 degrees for the cross streets (Third Street on either side). Hence, from a safety point of view alone there was ample justification for installing better street lighting that would not only be visible itself but would make crowded Northampton Street visible. This has been achieved so successfully that *there are fewer accidents at night than during the day.*

Pleasure Given

The boulevard system extends from the River at Front Street to Seventh Street and thus includes Center Square, a distance of eight blocks. The beauty and effectiveness of it must be seen to be appreciated. It is thrown on at deep dusk, after most of the store windows, which have long been a feature of Easton, have been lighted. From Center Square, Northampton Street can be seen stretching away eastward down to the bridge and westward up the hill to Sixth Street. Signs and windows make a brave show by themselves, but when, like the raising of a baton, the street lamps are flashed on, it is as if a romantic form of daylight has returned. The street lights dominate the night scene. In many cities where the street lamps have been installed grudgingly and without an intelligent decision that there shall be light in the true meaning of the word (see photographs), those lamps are observed principally when there is trouble on the line and they are not burning at night. At Easton, the lamplight is easily the feature of this avenue.

The light is as bright as a well-illumined living-room, and acquaintances

Voters judge your administration by the good it does



Citizens Approve the Installation of Modern Lighting

They take pride in being progressive

CORRECT street lighting is conspicuous and convincing evidence of a city's progress. It needs no explanation; it asserts, to visitors and residents, that the administration is in step with the times—alive to the demands of traffic and safety—alert to uphold the good name of the city.

Its intangible values are almost priceless. It creates an atmosphere of life, energy, enterprise. It invites the establishment of new business and new homes. Above all, it stimulates civic pride and sounds the keynote for modernizing activities in a dozen directions.

General Electric street-lighting equipment is up to date in both efficiency and appearance. Let G-E engineers discuss with you how best it may contribute to the prestige of your city and to the just pride of your community. Write General Electric, Dept. 6A-201, Schenectady, N. Y.

You pay for good street lighting whether you have it or not . . . with inadequate lighting, you pay in accidents, crime, and death

500-128

GENERAL ELECTRIC

Why not remember to mention THE AMERICAN CITY?

may be recognized a block away. The streets and the Square are well populated every night and are crowded on Saturday nights when many of the shops are open.

Business Men Approve

The "man in the street," therefore, enjoys the lighting. As one prominent merchant, Jacob Mayer, says: "The lighting system is the best thing ever done for the town." Another merchant who delivers his goods to such distant points as the Delaware Water Gap and the Poconos, New Brunswick and Doylestown, says that the lighting and window-shopping nights get the people out and make them interested in the new offerings and pull them back in the daytime. Still another merchant, in commenting on better business recently, ascribes it partly to easier parking regulations.

The popularity of the district as a shopping center is shown by its extension. Stores are sneaking around corners, where rents are lower but proximity to Northampton Street's reputation, brilliance and custom is valuable. Third Street is the outstanding example, and the best testimony to the recognized value of the boulevard lighting is the fact that all but one of the merchants on Third Street have signed a petition for a similar lighting system.

During the last two or three years many of these stores have installed new and attractive interior lighting systems. Most of them are now doing this to meet competition of other stores thus equipped; but the street-lighting system was the initial and major incentive to a generally brighter and more pleasing business district. It is in this manner that an electric company, playing squarely and far-seeingly with the City Council, cashes in on an outstanding street-lighting system in the business district.

The policy of the Metropolitan Edison Co. is to recommend first to a prospective client, whether city or merchant, the very finest installation obtainable at the present stage of the art of illuminating enginering. Should the cost seem to be too great, the plan is scaled down to what the consumer feels he can afford. Thus the customer cannot come back at the company in a year or two with a protest that something better should have been installed. Consequently, the last word is never reached and there is always an opportunity to sell still finer illumination.

Other Cities Interested

Adjacent cities are very conscious of this business and social magnetism. In Phillipsburg, just across the river, South Main Street has been paved and a new street-lighting system placed. A new $2,500,000 bridge is to connect the two cities, and this structure is likely to result in a new and consolidated business section in the New Jersey city in a more favorable location than the present section at river level at the foot of a steep hill, with a bus line running along the street and over to Easton for the same fare. The street-lighting and New Main Street, which completes the last piece of concrete highway between the states of New York and Pennsylvania, were dedicated by Governor Harold G. Hoffman on October 25.

Two minor incidents illustrate recognition of the vital importance of street lighting. At Christmas time it was thought that putting colored screens over the street lamps in Center Square would enhance the spirit of the season. It was tried, but accidents increased in such volume that the screens were quickly removed. A nearby town has half its citizens on relief and is away behind on payments for street lighting. The electric company wants to leave the lights off one night a week; but the municipality would not hear of it, assuring the company that the delinquency was absolutely unavoidable and that bills would be paid just as soon as possible. The psychological value of the street lighting was stressed. For Easton, too, it has been stated that the psychological effect of the lighting in these dreary years has been good.

NEW OLD

WITH THE OLD LIGHTS, YOU SEE THE LIGHTS; WITH THE NEW LIGHTS, YOU SEE THE STREET

First Class

The lesson of the installation in Northampton Street is that no municipality and no utility need hesitate before the opportunity to perform a job of first-class public service. Initiation of the project was strictly between the Council and the company, neither the taxpayers nor the business interests participating in the deliberations. The best equipment was installed, to the credit of the principals and the well-being of the citizens. All have gained thereby. The Union Metal standards are tall and dignified. The G. E. luminaires are powerful and shapely. On the opening night in September, 1932, Mayor F. C. Roberts delivered an address by candlelight in the Square, and then the lights came on. Over the radio Lowell Thomas said it was the best lighting job in the East. That was three years ago and, according to natives, the best evidence of its popularity is that there has been no dissent. For Easton is a try-out city. Any show that is not hissed there is pretty sure-fire in any other municipality.

DEWITT OPERATED HOTELS

featuring—
Unusually Comfortable Rooms, Good Food, Carefully Prepared, and Rates from $2.50 Single

In Cleveland it's
The HOLLENDEN
RADIO IN EVERY ROOM

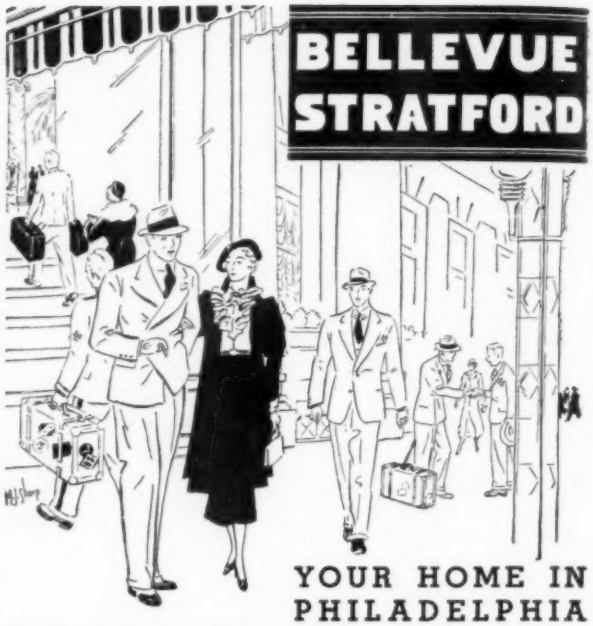
In Columbus it's
The NEIL HOUSE

In Akron it's
The MAYFLOWER

In Toledo it's
The NEW SECOR

In Miami Beach it's
The FLEETWOOD
An Exclusive Winter Resort Hotel

DeWitt Operated Hotels
are located in the heart
of their respective cities



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YOUR HOME IN PHILADELPHIA

A hotel that lives up to its fine traditions . . . an unhurried hospitality reminiscent of an Older Philadelphia, and its charm . . . a cuisine that bespeaks the wizardry of world-famed chefs . . . plus every modern, thoughtful regard for your comfort, convenience and pleasure . . . all at most reasonable rates.

Claude H. Bennett, *General Manager*

Atlantic City's Ideal Convention Hotel on the Boardwalk

Every facility for the perfect handling of your convention or conference combined with an efficient hotel service.

Spacious comfortable lounges . . . dining salons . . . ballrooms . . . sun parlors . . . sun decks . . . excellent cuisine.

Swimming Pool—Salt Water Baths—Golf
Tennis—Fishing—Horse Back Riding

For detailed information and special rate plan address the management.

The President
ATLANTIC CITY, NEW JERSEY

Statement of the Ownership, Management, Circulation, etc., Required by the Act of Congress of March 3, 1933, of The American City, Published Monthly at New York, N. Y., October 1, 1935.

State of New York, County of New York ss.:

Before me, Notary Public in and for the State and County aforesaid personally appeared EDGAR J. BUTTENHEIM, who having been duly sworn according to law, deposes and says that he is the President and Business Manager of the American City Magazine Corporation, Publishers of THE AMERICAN CITY and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management, etc., of the aforesaid publication for the date shown in the above caption, required by the Act of March 3, 1933, embodied in Section 537, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business manager are:

Publisher, AMERICAN CITY MAGAZINE CORPORATION, 470 4th Ave., New York City.

Editor, HAROLD S. BUTTENHEIM, 470 4th Ave., New York City.

Managing Editor, NONE.

Business Manager, EDGAR J. BUTTENHEIM, 470 4th Ave., N. Y. C.

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock).

AMERICAN CITY MAGAZINE CORPORATION, 470 4th Ave., N. Y. C.

Stockholders: EDGAR J. BUTTENHEIM, 470 4th Ave., N. Y. C. HAROLD S. BUTTENHEIM, 470 4th Ave., N. Y. C.

MARIAN V. BUTTENHEIM, Yonkers, N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds mortgages or other securities are: (If there are none, so state). None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholders or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the names of the person or corporation for whom such trustee is acting, is given, also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders, who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner, and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

AMERICAN CITY MAGAZINE CORPORATION,
EDGAR J. BUTTENHEIM, Pres.

Sworn to and subscribed before me this 1st day of October, 1935.
EDWIN WAGNER,
Notary Public.
New York County Clerk's No. 136.
(My commission expires March 30, 1936).
New York Co., N. Y.

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EDGAR J. BUTTENHEIM, Pres. and Mgr.
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Mayors' Conference Resolutions

Better Federal-Municipal Cooperation Urged

APPRECIATION of the vital part which the Federal Government has played during the depression years in relieving municipalities and their citizens from otherwise impossible burdens, and recognition by both local and national officials of the need for continued and more effective Federal-municipal cooperation, were the central themes of the annual meeting of the United States Conference of Mayors, held in Washington, November 18-20. Addresses by President Roosevelt, Secretary of the Treasury Morgenthau, Secretary of Labor Perkins, Attorney General Cummings, Administrator Hopkins, Senator Wagner, Mayors Hoan of Milwaukee, LaGuardia of New York, and others, were followed by the adoption of this significant series of resolutions:

FOR A LONG-RANGE PROGRAM OF PUBLIC WORKS AND RELIEF

Whereas, the problem of relief is of the utmost importance to every city administration; and

Whereas, it has been the experience of every city that without Federal aid the situation could not have been met; and

Whereas, a careful survey indicates that, regardless of business and industrial improvement, all employable men and women cannot possibly be permanently re-employed, so that for some time to come, and particularly pending such time as adequate national security measures will become effective, it will be necessary to provide and care for such of our fellow citizens who are unable to find gainful employment; and

Whereas, we have learned from experience that greater efficiency can be obtained and economy effected by a longer-range program for relief work instead of month-to-month allocations; and

Whereas, city budgets are planned on a yearly basis and more effective cooperation can be rendered if Federal relief and work policies could be synchronized to such budget years;

Therefore be it resolved that the United States Conference of Mayors express their appreciation and gratitude to the President of the United States and to the Congress for their vision and courage in establishing in an unprecedented manner the policy of Federal aid for destitute, unemployed persons; and

Be it further resolved that the United States Conference of Mayors petition Congress for additional appropriations for the fiscal year 1936-1937 sufficient to meet a planned and comprehensive program for relief work and direct aid to meet the unemployment situation throughout the country for such period; and

Be it further resolved that the President of this Conference and the Executive Committee be and are hereby authorized to cooperate with Congress and to appear before such committees of the House and Senate of the United States Congress that may be considering legislation and appropriations for relief purposes and present to them the needs of the cities and the estimates for further requirements, and the need for the continuance of President Roosevelt's policy of Federal aid for relief purposes; and

Be it further resolved that a copy of this resolution be forwarded to the President of the United States, to the Vice-President of the United States and the President pro tem. of the Senate, Speaker of the House of Representatives, and that each mayor send to the representatives in Congress of the district in which his city is located a copy of this resolution.

COOPERATION AND CONTRIBUTIONS FROM STATES

Whereas, it is the judgment of this Conference that in order adequately, scientifically, and humanely to meet the problem of unemployment it is necessary to continue work relief and direct relief; and

Whereas, cities and states should join with the Federal Government in providing the necessary funds, and legislatures must make the necessary appropriations to care for the states' apportionment or give adequate authority to the municipalities to provide funds to insure the cooperative effort of these three levels of government;

Therefore be it resolved that the cities take proper steps to insure adequate and proper cooperation and contribution from their own states; and

Be it further resolved that in order to obtain the full force, effect, and benefit of national social security legislation and appropriation, such legislation must be nation-wide and in every state of the union. To that end mayors should contact their governors and state legislators to obtain the necessary state action to come within the purview, scope, and benefits of national security laws, and adopt the present uniform law as suggested by the Department of Labor in keeping with the statutes.

LOW-COST HOUSING AND SLUM CLEARANCE

Whereas, there has been a great deal of public attention to the question of a public housing program, though relatively little has been accomplished on such a program; and

Whereas, an extensive housing plan on a nation-wide scale would give strength and stability to the economic structure of the nation; and

Whereas, numerous surveys and studies of housing conditions throughout the country indicate the growing shortage and congestion in housing facilities; and

Whereas, the disgraceful conditions in city slums and country hovels have a directly detrimental effect on the social well-being of these areas and the surrounding communities; and

Whereas, it is obvious that the Federal Government must assume the financing of such self-liquidating projects through loans or investments and low interest rates;

Now, therefore be it resolved that the United States Conference of Mayors does hereby urge upon Congress and the President the vital importance of this problem and the need for a well-coordinated and extensive housing program for the so-called low-income group, where desired and the need exists; and

Further, that the United States Conference of Mayors lend its assistance to the preparation and realization of such a program which will be substantially financed by the Federal Government, though in the interest of economy and efficiency the responsibility for the administration of the specific projects of the program be in the hands of the local authorities where so desired.

RELIEF FOR TRANSIENTS

Whereas, the problem of providing relief for transients is a peculiarly national or Federal problem; and

Whereas, the municipalities are unable to handle adequately the problem of relief to transient persons and non-residents;

Therefore be it resolved that the United States Conference of Mayors request a continuing program of Federal transient relief to the end that provision be made for the relief of transients.

MUNICIPAL EMPLOYEES AND OLD-AGE SECURITY

Whereas, municipal employees are not included under the provisions of the Social Security Act except that they would be eligible for old-age assistance if in need after retirement; and

Whereas, it is entirely possible, and we believe highly desirable, that provision be made whereby municipalities desiring to provide old-age security for their employees may come under the national system;

Therefore be it resolved that the United States Conference of Mayors petition the President and the Congress to amend the Social Security Law so as to enable municipalities, on a voluntary basis, to participate in the above manner.

New Officers of U. S. Conference of Mayors

At the annual election on November 20, the following were chosen to serve for the ensuing year: Honorary President—Daniel W. Hoan, Mayor of Milwaukee; President—F. H. LaGuardia, Mayor of New York City; Vice-President—Edward J. Kelly, Mayor of Chicago; Trustees — Frederick W. Mansfield, Mayor of Boston; Angelo J. Rossi, Mayor of San Francisgo; T. Semmes Walmsley, Mayor of New Orleans; Neville Miller, Mayor of Louisville.

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Our Municipal Notebook

Business Machines and Tax Rates

ONE year ago the manufacturers' display in connection with the annual convention of the New Jersey League of Municipalities included two exhibits of business machines. This year, November 14-15, there were five. This denotes not only an increased interest on the part of office-appliance manufacturers in the municipal field as a market for accounting, addressing and calculating machines, but equally an increased interest on the part of municipal officials in what modern office equipment may do toward balancing budgets. Evidence of official interest, at this convention, was the meeting of the New Jersey Tax Collectors' Association, at which Director Reginald Parnell, of the Newark Department of Revenue and Finance, described the machine methods by which taxes both current and delinquent are actually collected in increasingly large proportion to the total due. Mr. Parnell has in his department $45,000 worth of addressing, printing and accounting machines that have been so successful in downright good-business results that they provided the *raison d'etre* for his presence before the New Jersey convention.

While in the state of New Jersey and on this subject, it is interesting to note that of the 21 New Jersey cities of population 30,000 or more whose tax rates are listed by the *National Municipal Review*, the 10 that recently sent to THE AMERICAN CITY inventories of the machines they use had an average 1934 tax rate of 37.25 per thousand. The eleven that did not reply to this inquiry had an average rate of 38.79. This is a difference of 4 per cent in favor of the cities reporting their use of adding, billing, bookkeeping and check writing and signing machines, calculators, addressors, mailers, and all the rest.

The mere possession of these machines will not collect or reduce taxes. But the right motive in using them can perform these miracles. The spirit and pep that investigates time-honored procedure and simplifies it and gets it out of the way for larger matters, are the qualities which make business machines produce black figures. This survey mentioned covers practices in some 400 cities. Now listen to this: Among the many excellent reports received from cities throughout the United States, four went into detail requiring up to 35 pages of typewritten data, and the tax rates for these cities were as given at the top of the next two columns.

	City	School	County	State	Total	Ratio Assessed to Legal	Adjusted Rate
District of Columbia	$11.00	$ 4.00	$ —	$ —	$15.00	100	$15.00
Cincinnati	9.92	7.86	3.66	—	21.44	85	18.22
Milwaukee	12.77	10.56	9.38	0.12	32.83	80	26.26
Rochester	14.16	8.78	6.04	.21	29.19	78	27.77

On the general subject of modern machinery, Professor Robert Andrews Millikan reminded us on November 14 that the percentage of the population gainfully employed had risen from 34.7 in 1880 to 39.8 in 1930—a rise of 15 per cent during the liveliest fifty years of invention that any country in any age has ever known. The importance of the machine, beyond its immediate purpose of doing good work quickly, is to provide information which intelligent executives can put to use in developing new lines of employment. Without modern machinery, even Dr. Millikan, he admitted in regard to farm machinery, might be milking cows and bedding down the horses. Why put men and women to addressing envelopes, keeping old-fashioned books, making complicated computations,—when it isn't necessary any longer?

Intelligent Enforcement

AMERICANS are noted for extremes. A few months ago a young man with notebook and pencil stationed himself at an intersection in the New York area and took the license numbers of all cars proceeding against the red lights. Much newspaper publicity was accorded the incident, but no official excitement was displayed. The police continued to perform their duty as they saw it.

Proposals have been made that all citizens constitute themselves detectives ex-officio and report to the authorities all violations they observe. There are certain objections to this which the reader may list for himself. Incidentally, there are regions where the police need no such civilian crutch, even if it were practicable. The police of Nassau County, N. Y., for instance (see cover and page 17 of this issue) have a reputation for strict enforcement. There are places where the reverse is asserted. The Springfield, Mo., *Leader and Press* of October 24 tells how its reporter committed 39 violations in one hour in an unsuccessful effort to get arrested. Here is his score:

7 electric stop signs run through
13 major stop signs crashed
6 school stop signs disregarded
4 corners cut
2 heavy-traffic areas sped through at 40 and 50 mph
1 car passed on wrong side
1 safety zone driven through
1 U turn at railroad crossing
1 street car passed on wrong side
1 turn in middle of block
1 traffic jam caused by driving clear around intersection of St. Louis Street and Kimbrough Avenue
1 street car passed while discharging passengers

It seems evident that the stricter enforcement of regulations urged by most traffic specialists lies somewhere between the harsh issuance of summonses for honest mistakes of a minor nature made by all citizens at one time or another and an apparent indifference as to how the traffic fits its individual movements to the signals. In fact, an excellent substitute for "stricter," the world over, is "more intelligent."

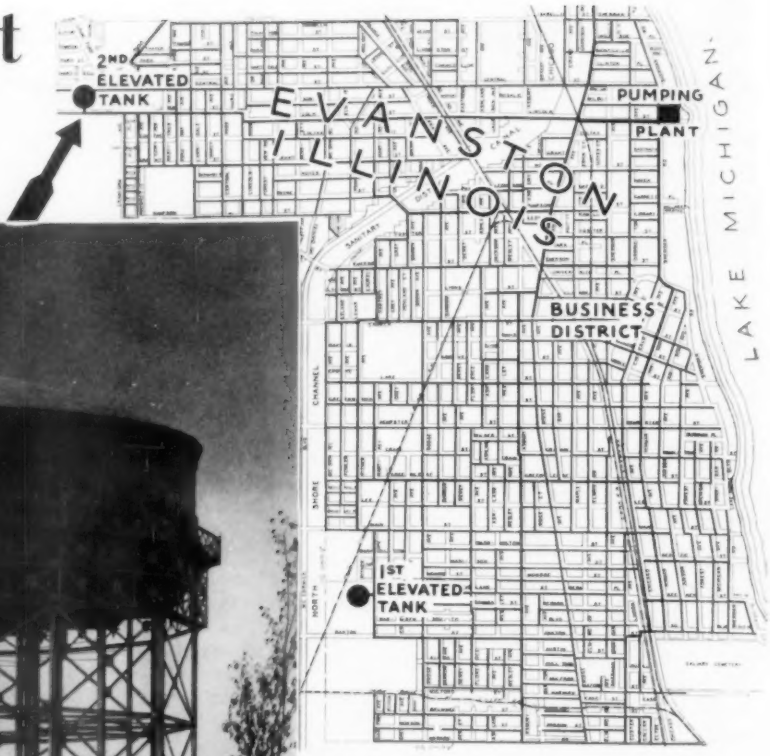
On Changing Street Names

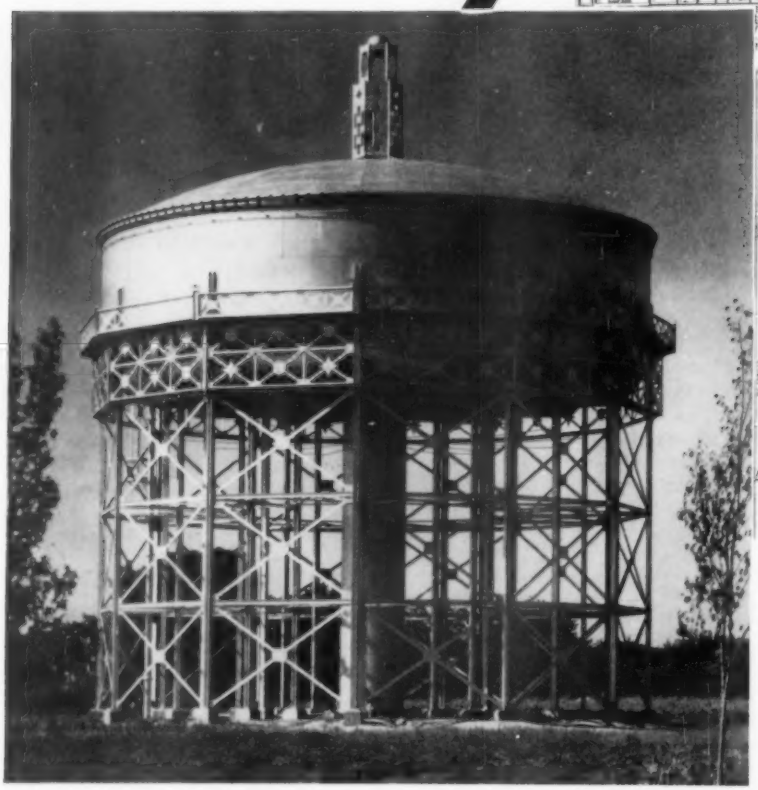
STREET names, however trite or ugly or actually misleading to the stranger, mean much more than their sound to the townspeople. They connote not only a geographical location, but the quality of the street as well. Councilmen wisely avoid unnecessary name changes. Usually they refuse to sanction any such changes unless there is a well-defined public opinion favoring them. Newspapers and public bodies in Chicago are now urging a considerable revision in street names in the interests of (1) more accurate designation; (2) greater ease in locating places; (3) prompter and more economical delivery of goods. In the matter of economy, one commercial house finds that unscrambling muddled street names costs them $12,000 per year. The agitation is naturally intensified at this time by a WPA allotment of $292,000 for the purchase and placing of thousands of new street signs in the city of Chicago. There is reason enough for any city to select and erect more legible street signs at any time. If at the same time it is possible to equip them with more appropriate street names, so much the merrier.

Busier Firemen

THE plan of centering safety in a compulsory car inspection bureau finds another practical performer in the city of Billings, Mont., which uses the Fire Department for the purpose, with saving and satisfaction.

How a District elevated tank....





helps the ENTIRE city

WATERWORKS engineers and experienced city officials know that an adequate solution of many water distribution problems includes the use of elevated storage tanks located at points throughout the city where they can best meet local needs. Property owners, however, do not always realize how they are directly benefited by plans to install district tanks, particularly if the tank is not located in their immediate district.

The City of Evanston, Ill., offers the best result-example of the adoption of modern district elevated tanks and the advantages realized by the entire city. In 1932, as one step in a plan of major improvements to the waterworks system, a 1½-million-gallon radial-cone bottom Horton tank was built in a district farthest removed from the pumping plant and where improved service was needed. Since this tank could be filled during off-peak periods, the obvious result was the release of needed pump and main capacity for serving other sections during maximum demand periods.

The satisfaction experienced as a result of this first tank led to the installation of a second one of the same type with a capacity of 1 million gallons in the northwest section of the city. In this case again, the primary reason was the improvement of local conditions in that district. But the tank serves to relieve the rest of the system at times when facilities are most needed and therefore is of direct and important value to the entire city.

If you have a water storage problem our nearest office will gladly consult with you, and furnish cost data for estimating purposes.

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Courtesy to Customers Aids Water Departments

COURTESY NOTICE
From Your
WATER DEPARTMENT

The city's books show that water account at this address is unpaid. If this is an error in the bookkeeping department, won't you check your records and phone No. 25 of the mistake?

Rules governing the Water Department provide that service be discontinued without further notice, and a service charge for reconnecting must be collected. All water accounts remaining unpaid three days after the posting of this notice must be cut off as stated in the above rule.

THE CITY OF SUMTER
Water Dept.

The "Courtesy Notice" Helps in Sumter, S. C.

THE regulations of the Water Department in Sumter require that water accounts remaining unpaid after the 10th of the month shall be cut off for non-payment. Rather than cut them off immediately, as many consumers may have merely mislaid the bill, the Water Department has found it most expedient to use a "courtesy notice," which is printed on a one-cent Government post-card. This notice is reproduced above.

F. K. Ellis,
Superintendent, Water Department.

Selling the Water Department to the Citizens

THE Water Department which realizes that the more its consumers understand about its history, its operation and its future program, the greater will be the cooperation in all the undertakings of the Department, is bound to thrive and help the community to prosper. The Twenty-Fifth Annual Report of the Water Department of the village of Oak Park, Ill., carries an introductory page by Dudley C. Meyers, Commissioner of Public Works, which is distinctly educational and gives the consumer an idea of what the water supply means to him.

"Water is one of the most essential elements of the daily life of every citizen in the community. It is absolutely necessary for the health, safety, comfort and convenience of every one. Water is used for drinking, for sanitary purposes, for fire protection and refrigeration purposes, and is also used for lawn sprinkling, gardens, wading pools and skating ponds.

"Every time you turn the tap at the kitchen sink you are coming in contact with the Water Department of the village.

"While water is so necessary, it is also one of the cheapest items that enter into daily life. You can purchase 1,000 gallons of water for the price of a gallon of gasoline. The average water bill for a family of four is a dollar a month, and it costs less for water supply for a family for a month than it does to fill up the gasoline tank just once. Since the repeal of prohibition, there are other things that are purchased by the pint and quart, the price of which equals the cost of a month's water supply.

"The fire insurance rate of a community is largely based on the adequacy of the water supply. Due to the fact that Oak Park has a fine Fire Department and an adequate water supply, our fire insurance rating is among the lowest in the state. Chicago, Evanston and Oak Park are the only communities with a Class 3 fire insurance rating.

"Oak Park originally obtained its water supply from artesian wells which were privately owned by James W. Scoville, one of the pioneer settlers in the village. Later on, this system was sold to the Public Utility Co., which finally became the Public Service Co. of Northern Illinois.

"Up to 1908 the water supply for Oak Park came entirely from the wells of the Public Service Co. located at Oak Park Avenue and North Boulevard. As the village commenced to develop rapidly at that date, it became difficult to furnish an adequate supply of water from this source.

"In 1908 an emergency connection was made between the system of the city of Chicago and the reservoir at Euclid Avenue and North Boulevard. At that time a contract was entered into between the city of Chicago and the village of Oak Park for water supply, Oak Park having the right to do this, being part of the Sanitary District of Chicago.

"In 1909 a system of mains supplied with Lake Michigan water was laid by special assessment, taking care of most of the territory south of Madison Street, and for a few years there were two water systems in the village: one supply from wells of the Public Service Co. and the other from Lake Michigan through the system of the city of Chicago.

"From 1908 to 1912 the water received from the Chicago system was distributed through Chicago pressure, but, as the system was extended, this pressure was not sufficient and in 1912 a booster pumping station was erected at Lombard Avenue and North Boulevard.

"On November 25, 1912, negotiations between the village and the Public Service Co., which had extended over several years, were brought to a conclusion by the purchase of the Public Service Co.'s system at a price of $290,000, this purchase price to be paid out of the revenue of the Water Fund.

"In 1924, in order that the village might have adequate pressure and supply at all times, a bond issue was submitted to the voters for a reservoir. This bond issue was approved and a 5-million-gallon reservoir was constructed under the Stevenson Playground at Lombard Avenue and Lake Street. Since the installation of the reservoir there have been only one or two occasions when we have had any difficulty in obtaining adequate water supply with the proper pressure.

"From time to time, as moneys are available in the Water Fund, cross-mains and extensions have been constructed and 4-inch mains have been replaced with 6-inch mains or larger.

"The Water Department has been under the general supervision of the Superintendent; William Thomas, Engineer for the village, has been in charge of the pumping station and distribution system; W. B. Imhoff has been in charge of the office, and Andrew Anderson in charge of the construction and shop departments.

"The office of the Water Department is in the Municipal Building at Euclid Avenue and Lake Street; the meter repair shop is in the building at Lombard Avenue and Lake Street, and the material storage yard is at the same location; the pumping station is at Lombard Avenue and North Boulevard.

"All Water Department records are kept in the office at Euclid Avenue and Lake Street. All supplies, including meters, hydrants, valves, pipe, fittings, etc., are kept in the Water Department shop and yard at Lombard Avenue and Lake Street.

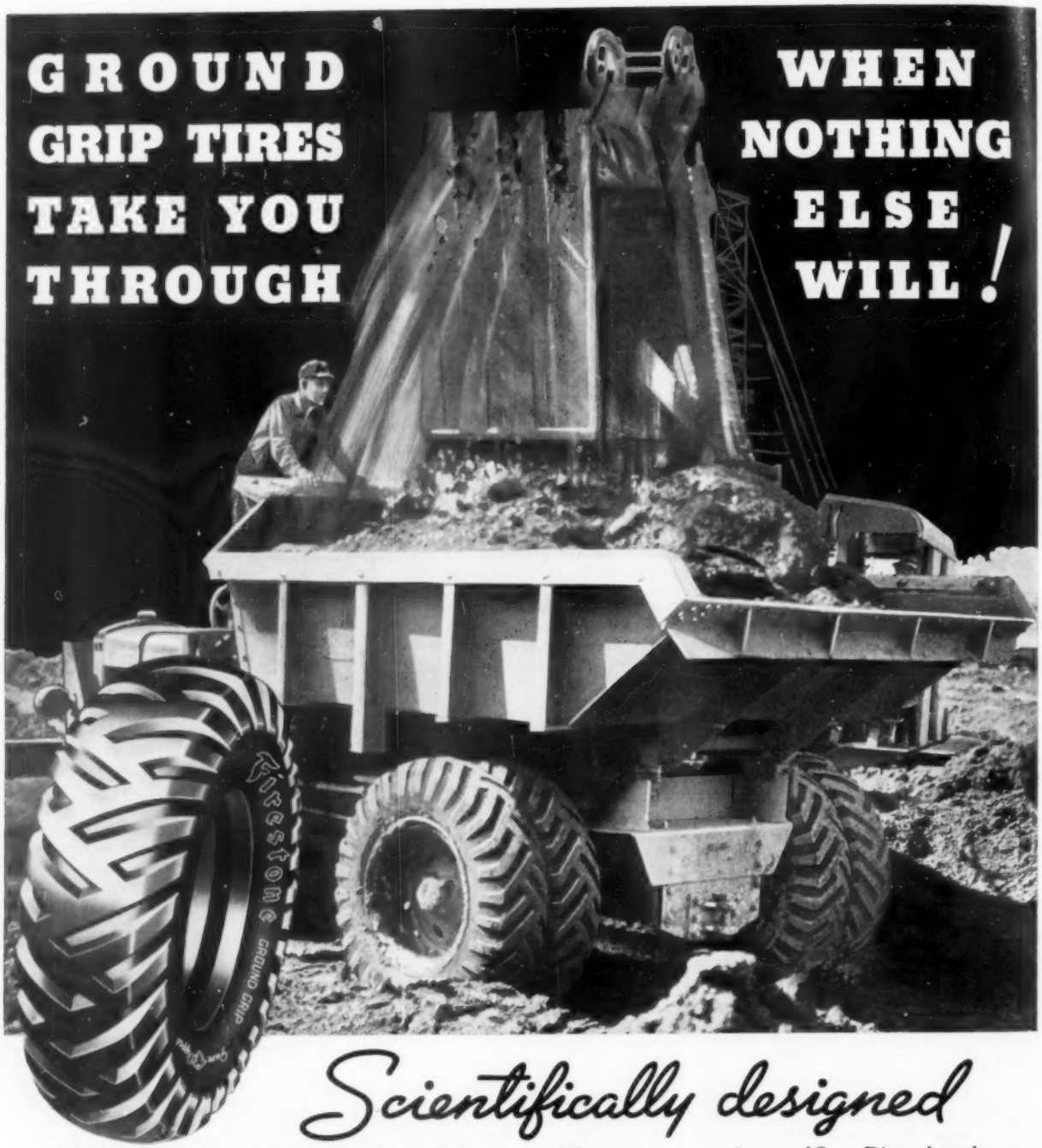
"There are six persons in the office force, five in the shop, two meter readers, one inspector, five pumping-station engineers and ten laborers."

What Will the SPCA Say?

POOR Dobbin must go dry in Davenport, Iowa, according to a report in the *Davenport Daily Times*. The last known public watering trough in Davenport recently went dry because a County Supervisor discovered that it cost the county $22 in one month to provide water for one basin which neighbors reported was used possibly twice a week by passing peddlers or junk men still driving horses.

The interesting thing is that the county officials did not remember when the last contract was made with the Davenport Water Co. for furnishing water for this trough, but the members of the Board of Supervisors considered the monthly bill too high, possibly due to a leak which the meter duly recorded as water used. Consequently the contract for the trough was canceled, thus eliminating eight drinks a month for thirsty horses at $2.75 per drink.

GROUND GRIP TIRES TAKE YOU THROUGH WHEN NOTHING ELSE WILL!



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The body of this remarkable tire is built with Gum-Dipped High Stretch cords, giving it super-strength to withstand the terrific strains under heavy loads.

There are two extra layers of Gum-Dipped cords between the tread and body, permanently locking them together. These are patented Firestone construction features not used in any other tire.

Equip your trucks with Firestone Ground Grip Tires—you will save more time and do more work at lower operating cost. Specify Firestone Ground Grip Tires on your new equipment. The nearby Firestone Auto Supply and Service Store or Firestone Tire Dealer is ready to serve you.

• • •

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Firestone

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Street Maintenance and Sidewalk Repair

Peekskill, N. Y.

OUR streets are generally in good condition. In spite of reduced budgets during the past three years, we have been able to keep our streets in good condition by using low-cost methods wherever possible, by keeping the unit costs of materials as low as possible, and by operating as efficiently as possible. Practically all of the maintenance as well as some new construction has been done with our own forces. During the past 3½ years, we have used $120,000 in relief labor, practically all of which has been applied to "made" work, such as opening new streets, grading and draining them. Some of the labor has been used in widening projects which were more or less urgent and necessary. Without this labor, there is no doubt, all these improvements would have waited many years.

For 1936, the budget will be curtailed more than previously, owing to a considerable increase in the debt service of the village, which will be at least partially offset by reductions in the budgets of several departments. So, for 1936, we shall be forced to maintain the existing pavements in as good condition as possible with the reduced funds allotted.

DAVID G. MILLER,
Commissioner, Department of Public Works.

Shelbyville, Ind.

OUR streets are in very good condtion. All the streets that are not permanently improved have been given a coat each year of approximately 1 pint of No. 6 road oil and cured with about 18 pounds of sand per square yard. This has developed an oil mat which is standing up and giving very good service. In 1935 we have experimented with a 1½-inch powdered asphalt mat on some of the streets which carry heavy traffic, and so far we find that it affords a very economical and good pavement.

We have maintained our streets during the depression in the same manner as before. This was made possible because of the gas tax in Indiana, in which all cities and towns share. Considerable new construction has been carried on with relief labor along with our regular forces. On streets and sewers together we are spending during 1935 about $150,000. Our plans for 1936 will not be formed before January or February of that year.

C. R. YATER,
City Civil Engineer.

Lorain, Ohio

OUR residential streets are generally in good condition. Our main east-and-west street, Erie Avenue, which is U. S. Route 6, and 22,000 feet in length, is in A-1 condition except a short section on the east side. A large portion of this street has been rebuilt during the past five years. The other main streets are not in good condition. This is a result of heavy truck service which has traveled these streets at pleasure, not being kept on main established routes.

We have been using concrete in repairing bad breaks in pavements; and a cold patch mixture of tar and slag for all moderate depressions and breaks, and the T-13 asphalt mixture for thin patches. A considerable amount of mixed-in-place bituminous material has been used for surface coating of secondary streets. This maintenance work has been done by the regular forces. We have not used any relief labor on strictly maintenance work, but have used it in macadamizing and grading streets.

Plans for 1936 have not yet been made. As regards street maintenance, we shall probably follow the same plan used in 1935.

HENRY F. ALEXANDER,
City Engineer.

Fort Smith, Ark.

OUR concrete and asphalt streets are in good condition. Most of our brick pavement is old and part of it badly worn. All our pavement is maintained by our regular forces. The macadam streets are in better than average condition, and the dirt streets are average.

The maintenance on the latter two is divided. With relief labor we are grading some streets with rock cuts and hauling the shale and broken rock to repair the macadam and dirt streets and alleys. About 100 relief men have worked the streets and alleys in 1935, of whom 75 per cent have been employed on new construction and 25 per cent in producing and hauling the waste material to repair streets which properly go to maintenance.

During the first of 1936 we expect to buy a new crawler tractor and be prepared to maintain our graded streets with our regular forces.

H. S. PECK,
Commissioner No. 2.

Gary, Ind.

THE streets in Gary are generally in fair condition; however, they are not up to the standard we should like to maintain. This is because of our reduced budgets for the last three years and our inability to issue improvement bonds or do special assessment work during this period.

Our methods of maintenance for the last three years have consisted mostly of hot penetration work using asphaltic materials, both for patches and resurfacing. No new construction has been done recently. This work has been done by means of a combination of our regular forces and relief labor. The amount of relief labor has varied from a force of 35 to 700. Plans for 1936 involve the stretching of the budget as far as it will go for necessary maintenance.

R. HOWARD ATCHESON,
City Engineer.

Lubbock, Texas

OUR dirt streets are maintained only by grading and blading after each rain. Maintenance on the paved streets is done by city forces; however, we have very little maintenance work on paved streets. We have approximately 275 blocks of pavement, 245 blocks of brick pavement, all constructed since 1922, and 30 blocks of three-course penetration, all constructed since 1932, and our maintenance cost thus far has been practically nothing.

M. R. SMITH, JR.,
City Engineer.

Charleston, S. C.

OUR streets are in good condition. The standard asphalt pavements, 4-inch and 5-inch portland cement concrete base with a 1½-inch binder and a 1½-inch top, have required very little repair work. Such as has been necessary has been provided by a local paving contractor, who also makes the pavement repairs over service openings. The cost of these last is charged to the plumber, Water Department, or gas company making the openings.

Vitrified brick and granite block pavements as well as concrete and flag sidewalks have been maintained by our regular repair gang of eight men and a foreman. The earth roads have been dressed, or shaped, from time to time, and grass has been cut by relief labor, both national and municipal.

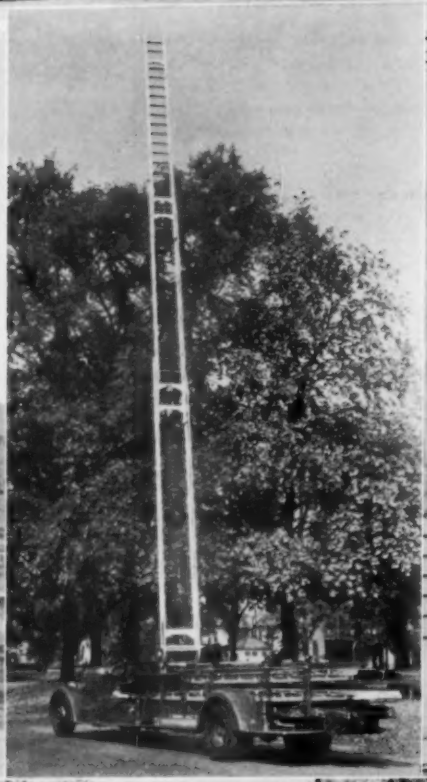
J. H. DINGLE,
City Engineer.

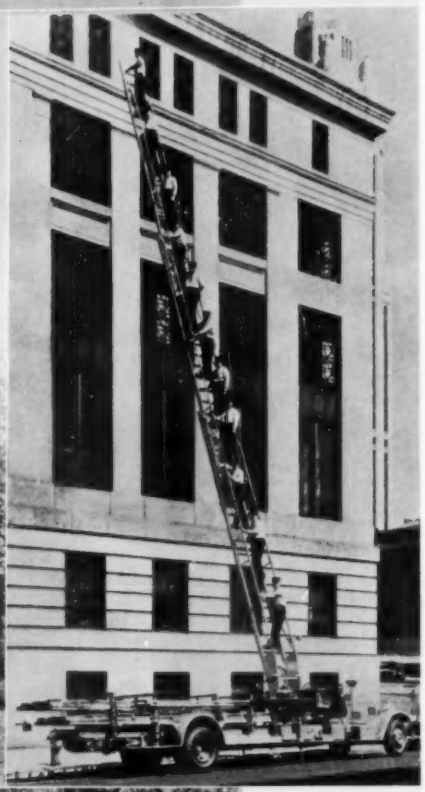
Sidewalk Repair with Relief Labor

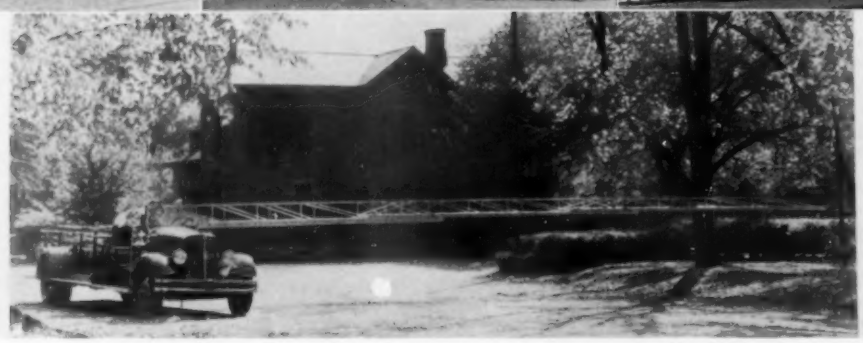
THERE are 200 miles of portland cement concrete sidewalks within the limits of the streets of Oak Park, Ill. Inspections are made from time to time in these sidewalks and, wherever a defective sidewalk is found in front of private property, the property owner is notified to make repairs. Sidewalks between the property line and curbing at street intersections are repaired by the Street Department; also all sidewalks which have been damaged by the roots of parkway trees. The total length of sidewalks repaired or replaced in 1934 was 3,740 lineal feet at 462 locations, and the work was done at a total cost of $954.34.

Plans have been made so that labor furnished by the Illinois Emergency Relief Commission can repair sidewalks, and also raise to grade several miles of old sandstone sidewalks which have settled. There are several thousand feet of defective and broken sidewalk in the village which should be replaced with new sidewalk.

DUDLEY C. MEYERS,
Commissioner of Public Works.







The Seagrave Sixty-Five Foot Service Aerial Ladder Is the First All-Steel Aerial Ladder Manufactured in America. Write for Complete Details.

THE SEAGRAVE CORP.

COLUMBUS, OHIO

Street Cleaning and Snow Removal

Los Angeles, Calif.

THE streets of Los Angeles are cleaned by hand and mechanical sweeping, using Elgin and Austin motor pick-up sweepers.

A city ordinance prohibits parking during certain hours at night, and this is most beneficial to the street-cleaning forces.

The catch-basins in Los Angeles are not of the water-seal type, nor do they have any sump below the outlet grade. The débris that accumulates is removed with long-handled type scoops. The catch-basins and laterals are flushed with water from a fire hose when necessary.

LLOYD ALDRICH,
City Engineer.

Syracuse, N. Y.

WE use motor pick-up sweepers and block men in our street-cleaning activities. The block men are used during the day in the congested business district. Nine sweepers are used nights in the residential sections, which are followed by 1½-ton trucks behind each sweeper. During the day six 1½-ton trucks with crews patrol the city, picking up any street litter that may be in the streets.

Where parking is allowed in the business section, the time limit is 45 minutes. No parking is permitted on any paved street between the hours of 2 and 5 P.M.

The catch-basins are cleaned with three Auto Eductors.

GEORGE H. BALLANTYNE,
Commissioner of Public Works.

Everett, Wash.

THE streets are cleaned by a flusher and "push-up." Our motor equipment consists of one Pierce-Arrow 6-ton, 1,500-gallon tank truck equipped with a power pump, gasoline-driven, delivering 450 gallons per minute with 85 pounds pressure.

How Clean Are Your Streets?

What method of street cleaning do you use?
What motor equipment have you?
How do you handle the "parked-car" nuisance?
How do you clean catch-basins?

We have not found much trouble from parked cars, for the push-up hand work is almost all done very late at night.

Catch-basins are cleaned with scoop shovels. This work is done by one man, and a truck picking up the push-up débris, services the catch-basins as well.

JOHN WALSH,
Assistant Street Superintendent.

Milwaukee, Wis.

FOR street cleaning, motor sweepers and flushers are used very extensively almost exclusively on permanently paved streets. In the downtown section a number of white wings are employed in addition to the motor sweepers. Tar macadam streets are swept with hand brooms. We have ten motor sweepers, eight motor flushers and two horse-drawn flushers.

The problem of cars parked on streets is partly solved, so far as street cleaning is concerned, by doing this work on some streets at night, from 11 P. M. to 7 A. M., and on others by beginning it early in the morning, 3 to 5 A. M. We then work outward, on streets where parking is not so heavy, and in that manner make the best of a bad condition and get the best results possible.

Catch-basin cleaning is done by Auto Eductors, nine of these machines being used during the summer months.

CHARLES O. DAVIS,
Superintendent, Bureau of Street Sanitation.

Pawtucket, R I.

THE streets of Pawtucket are cleaned entirely by hand labor. The parked-car nuisance has been handled effectively by the Traffic Commission, which makes recommendations to the Board of Aldermen; after a fair try-out of these suggestions an ordinance is adopted embodying these plans. Traffic ordinances are enforced by the Police Department.

The catch-basins are cleaned by a pneumatic orange-peel bucket and cleaning machine.

ALBERT J. LAMARRE,
Commissioner of Public Works.

St. Paul, Minn.

THE greatest percentage of our street cleaning is done by hand, and the rest by a Model D motor pick-up sweeper.

We overcome the greatest part of the parked-car nuisance by cleaning the loop of the heavily parked streets during the earlier hours of the morning before the traffic has assembled.

Catch-basin cleaning is all done by hand.

MILTON ROSEN,
Commissioner, Department of Public Works.

Durham, N. C.

WE use motor pick-up sweepers for cleaning our streets, and the catch-basins are cleaned by hand labor. Nothing is being done about the parked-car nuisance at present. In former days we did prohibit parking in the business section between 1 A. M. and 6 A. M. to allow the streets to be cleaned. When the ordinance was violated, the cars were taken in by the Police Department and a fee collected when the car was called for. This practice has been discontinued, and it is almost impossible to sweep certain sections of the business district.

H. W. KUEFFNER,
Director of Public Works.

A CATERPILLAR DIESEL AUTO PATROL ON WINTER SERVICE NEAR YORK, PA.

"In 21 years, we have never had a single occasion to complain about Mathieson Products or service..."

Water works at Smithsburg, Md., one of the two municipal water plants supplying the City of Hagerstown.

Hagerstown, Maryland, long a satisfied user of both Mathieson Chlorine and HTH

IT is only natural that water works officials, upon whose shoulders their communities place such heavy responsibility, should appreciate pure chemicals, trouble-free equipment and dependable deliveries. That they do appreciate these things and that they place their business accordingly is shown by the tribute to Mathieson Chemicals expressed by Albert Heard:

"We have been continuous users of your products since 1914 when we first started buying our chlorine requirements from you," writes Mr. Heard. "In that time we have never had a single occasion to complain about your products or service."

"In the past three years we have added ammonia and HTH to the products we purchase from you. We have found HTH a useful product for cleaning filters . . . HTH is sprinkled on the sand and then rinsed through before putting the filter back in use. We also use it in the settling basin for algae treatment . . ."

(Left) Albert Heard, Secretary of the Board of Water Commissioners, Hagerstown, Md.

In hundreds of communities throughout the country, HTH is working effectively, either alone or in conjunction with liquid chlorine, in a wide variety of sanitary jobs. These are described fully in a valuable 72-page book, "Hypo-Chlorination of Water," which is available free of charge to municipal officials. Send for your copy today.

The MATHIESON ALKALI WORKS (Inc.)
60 East 42nd Street New York, N.Y.

Soda Ash . . . Liquid Chlorine . . . Bicarbonate of Soda . . . HTH and HTH-15 . . . Caustic Soda . . . Bleaching Powder . . . Ammonia, Anhydrous and Aqua . . . PH-Plus (Fused Alkali) . . . Solid Carbon Dioxide

HTH is readily soluble and more than twice as concentrated as ordinary chlorinated lime. It is not affected by weather conditions and retains its full strength for months. No special equipment needed. No returnable containers. Shipped in cases of one dozen 4-lb. cans and drums of 75 lbs. net.

Sewage Hazards and Treatment Methods

Boon-Doggling Versus Health

THE Federal Government is spending $28,071, and the local authorities of Bayonne, N. J., $1,234, to build a boat landing and public swimming and wading place on the waterfront at Forty-Fourth Street of that well-known oil town. All the waters surrounding Hudson County are dangerously polluted, but the boon-dogglers are trying to make it easier to contract typhoid or some other disease.

—As reported by the *New York Sun*.

One Man's Meat Is Another Man's Poison

SEWAGE disposal is no problem in Lewisburg, W. Va., according to the *News-Bulletin* of the West Virginia League of Municipalities. The city is situated in the heart of the limestone section of Greenbrier Valley, and the ground beneath is honeycombed with caves. Septic-tank and sewer-line discharges are simply turned into some of the fissures leading into these enormous caverns, and sewage disposal is accomplished without further ado.

Some other city perhaps 100 miles distant innocently taps a supposedly pure pool of water in a limestone cavern beneath its surface, defies the State Health Department's order to chlorinate because it has tapped a "purest source of water furnished by Mother Nature," and wonders why it has a typhoid epidemic.

Activated Carbon in Sewage Treatment

THE possibility of using activated carbon as an aid in sewage treatment has attracted considerable thought for a number of years. Willem Rudolfs and E. H. Trubnick, Chief and Research Assistant, Department of Water and Sewage Research, New Brunswick, N. J., have reported on their search of literature and the work done at the New Jersey Agricultural Experiment Station at New Brunswick, in a paper in the *Sewage Works Journal*. The experimental work reported on the use of activated carbon in sewage treatment was essentially in the nature of a survey, but the results obtained in several instances, both in the laboratory and in the field, are of sufficient detail and duration to allow rather definite conclusions.

Probably the most interesting results of practical value were obtained in connection with sludge digestion. The activated carbon materially accelerated the digestion of poorly digesting material, increased gas production, produced a greater volatile matter reduction, affected the pH values of the materials, and produced a ripe sludge of better dewatering quality. In addition, the carbon apparently removed toxic substances which were present in the sludge.

The field results checked remarkably well with those obtained in the laboratory. The carbon did not cause a greater gas production per pound of volatile matter destroyed, but the rate of destruction of volatile matter was greater than without carbon. The result was a greater quantity of gas in a given time. The time required to destroy a given quantity of volatile matter was also shorter, so that the gas produced in a given time from the same quantity of volatile matter added was considerably greater with carbon than without carbon. Properly seeded material, digesting at much more nearly optimum temperature, was very little affected by the carbon. The after-effect of the carbon on digestion was but slight. This is to be expected, when the action of the carbon is considered in relation to its adsorptive and alkaline qualities. It appears, therefore, that carbon is of greatest interest where tanks are overloaded and operating poorly, and the temperature is low. The effect of the carbon on the changes of pH values in poorly digesting mixtures can probably be correlated with the faculty of the carbon to adsorb CO_2 and volatile acids.

Results obtained do not show any appreciably greater B.O.D. reduction of the raw sewage when activated carbon was added. This is probably due to the fact that the carbon has a limited power of adsorption, so that when highly oxidized effluents are treated with carbon, practically no further B.O.D. removal takes place, but when incompletely oxidized effluents are treated, or effluents such as those from a chemical precipitation process, containing considerable B.O.D. caused by soluble and semi-soluble substances such as organic acids, certain fatty materials and soaps which are not removable by coagulation, the activated carbon causes a reduction in B.O.D.

The faculty of activated carbon to adsorb fatty acids is of interest in connection with scum formation on settling and digestion tanks. These fatty acids are a factor in scum production on account of their spreading quality and effect on changes in surface tension. Removal of fatty acids from their sphere of influence, either temporarily or permanently, would allow more solids to settle, or would prevent their flotation. The result would be cleaner surfaces of tanks, and especially the final tanks of plants where a relatively large percentage of suspended solids reduction is obtained, but where the effluent is not highly oxidized, or where the quantities of fatty acids are proportionately large.

Neutralizing Coke Oven Sewage

AT the end of Hazelwood Avenue in Pittsburgh, Pa., two sewers empty into the Monongahela River; one takes care of sewage from quite a large district, and the other has a strong flow of acid sewage from the Jones & Laughlin coke ovens. A large cribbing box has been built at a cost of less than $100, and into this the two sewers discharge, allowing the water and acid to mix, neutralizing the acid and destroying the sludge to a large degree.

It is hoped that a grinding machine for garbage will be erected over the sewer from the steel mill, thus further neutralizing the acids and assisting in the destruction of the garbage.

WILLIAM N. MCNAIR,
Mayor.

Removing the Hazards from Lifting Manhole Covers

FROM the Oxford Paper Co., Rumford, Maine, through the cooperation of *National Safety News*, we are able to present to our readers a description and illustration of a lifter with which a man can handle manhole covers without

THE LIFTER EQUIPPED WITH A LOOPED HANDLE

danger to his back or feet. This lifter eliminates strain in removing the covers, also the possibility of a heavy cover dropping on his feet, and provides a safe way of replacing the cover.

The lifter is made of a 4-foot bar of iron ¾-inch in diameter. About 3 inches from the end of the bar is a piece of iron which acts as an interlocking lip when pressure is applied.

USING THE MANHOLE COVER LIFTER —NO BACK STRAINS OR CRUSHED TOES BY THIS METHOD

Startling Reduction in FIRE LOSSES at Lenoir, N.C. Demonstrates Value of GAMEWELL Municipal FIRE ALARM system

CITY of LENOIR
NORTH CAROLINA

OFFICE OF FIRE DEPARTMENT
August 2nd, 1935

Mr. Chas. Herst,
District Sales Manager,
The Gamewell Company,
510 Peters Building,
Atlanta, Ga.

Dear Mr. Herst:

The installation of our Gamewell Fire Alarm System was completed and the system placed in operation March 27th, 1935. We have 93 Gamewell Fire Alarm Boxes in use in a city of approximately 7,000 population.

Since the installation, we have had 100% box alarms, which we feel is unusual for a city that has always depended on the telephone for reporting fires.

From March 27th, to August 1st, 1932, we had $309,000. worth of property at risk and a loss of $36,000. For the same period in 1933, we had $75,900. at risk and a loss of $42,420. In 1934, during a corresponding period, we had $96,200. at risk and a loss of $45,066. For this same period in 1935, or in other words since the Gamewell System was installed, to date, we have had $1,254,250. of property at risk and a loss of only $581.

Our explanation of this small loss is that every alarm we have received has been a box alarm, which was fast and accurate, enabling us to get on the job more quickly, and thereby keep the loss low.

We are extremely proud of our low loss ratio and the fact that all our alarms have been box alarms. The Gamewell Fire Alarm System is fast, accurate, and dependable.

This letter is sent to you without solicitation.

Yours very truly,
Lenoir Fire Department
A. Y. Cottrell,
Supt. of Alarms.

100% Box Alarms Cut 4-Month Fire Loss to $581, Compared With Previous Average Fire Loss of $61,162, When Telephones Were Relied Upon Entirely » »

TWO LENOIR, N. C., OFFICIALS transmitting an alarm over their new Gamewell Fire Alarm System which has reduced the city's fire losses tremendously.—W. J. Lenoir, Mayor (right) and G. C. Courtney, Fire Chief (left).

Lenoir, N. C., has just provided us with one of the most striking examples of the value of a Gamewell municipal fire alarm system that we have ever seen. During a four-month period they received 100% box alarms which reduced their fire losses to $581 against an average four-month fire loss of $61,162 for the three years prior to the installation of the new system when the city relied entirely on telephones for the transmission of fire alarms.

Besides showing the value of a modern municipal fire alarm system these figures establish the soundness of adequate fire alarm box distribution. In this city of approximately 7,000 they have 93 latest type Gamewell fire alarm boxes in service, thus making it possible for citizens to find a box quickly in any part of the city.

In the face of the convincing facts reproduced above, every responsible fire department or other municipal official should take steps to equip his city or town with a modern fire alarm system having an adequate number of fire alarm boxes. Write for a copy of our booklet AC700 telling how to plan a modern fire alarm system for your city.

THE GAMEWELL COMPANY

"A Box A Block"

NEWTON, MASSACHUSETTS

Mention THE AMERICAN CITY—it helps.

Public Safety

The Police System of Nassau County, N. Y.

By ABRAM W. SKIDMORE
Chief of Police

OUR six county police precincts police all the unincorporated territory and 28 of the incorporated villages (under the law any of the cities or villages may be made a part of the county system by resolution of the council or village trustees). In each of the county precincts we maintain a branch of the Detective Bureau, which is available for the cities and villages within the bounds of the precinct.

The result of all this is very gratifying. All the police units join with the County Police in any matters that affect the county as a whole.

We are about to launch a plan in cooperation with the five hospitals in the county to centralize the calls for ambulance service in accidents at police headquarters, and have divided the county into five sectors for this purpose. It is hoped by this plan to expedite ambulance service at the scene of an accident and to effect a more even distribution of patients at the hospitals.

The members of this department are instructed that, while passing through either of the two cities or villages not in the county system, when they observe a violation of the law, they are immediately to act and take the violator to the local village or city police headquarters; in the service of a summons, to make it returnable to the village or city judge; if called to the scene of an accident, to take all necessary action and, if a local officer is not present, to deliver the data to the local police station, or, if a local officer appears, to turn the data over to him; if they come upon an accident and a local officer is present, to stop and offer any assistance.

The airplane shown on the cover of this magazine was presented to the Department by county residents. Since September 16, 1934, there have been 143 total hours of flying time, including trips to South Carolina, Tennessee and Georgia, as well as to New York and New Jersey cities.

This is the police system that Edward P. Mulrooney, former Police Commissioner of New York City, at the October 1-4 Crime Conference at Albany, N. Y., recommended for the country.

NEW HEADQUARTERS BUILDING AT MINEOLA, N. Y.; HIGHWAY PATROL FORDS; RADIO ROOM WITH CHIEF ABRAM W. SKIDMORE, CAPTAIN WILLIAM K. ALLEN, AND WILLIAM PETER FISHER, OF WESTERN ELECTRIC CO.

TAX RECEIPTING *and* CASH CONTROL

WITH MAXIMUM PROTECTION . . . GREATER SPEED AND EASE IN HANDLING THE WORK

This phase of accounting is one of the most vexing that tax collection departments have to face. Burroughs offers an ideal solution . . . in a tax receipting machine that prints on the receipt—in distinctive figures—the serial number, tax bill or property description number, date, amount of payment and cashier identification. A transcript of each receipt is printed on a locked-in, detail tape and a total is accumulated in the machine against which the cash must balance at the end of the day. This total is available only to an authorized person. This affords maximum protection to clerk, tax collector and city.

Burroughs Tax Receipting Machine also speeds up the work, permitting the clerk to wait on more customers, thus serving taxpayers better. It can also be used as a fast, practical adding machine for all kinds of figure work incidental to tax accounting.

The low price of the machine—the work it does—and the many uses to which it may be put, make it a wise and profitable investment for any municipality.

For complete details, together with a demonstration, telephone the local Burroughs office. Or, if you prefer, check and mail the coupon.

Burroughs

Governmental Division, Burroughs Adding Machine Company, Detroit, Michigan

Without obligation, send me complete information about the newest mechanical equipment for handling the accounting problems checked below.

Tax Accounting ☐ Budgetary Control ☐ Fund Accounting ☐ Stores Records ☐ Payroll and Check Writing ☐
Purchase and Payment Records ☐ Revenue and Expense Distribution ☐ School Board Accounting ☐
Municipal Utility Accounting ☐ Institutional Accounting ☐

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Address_____

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DECEMBER, 1935

The American City

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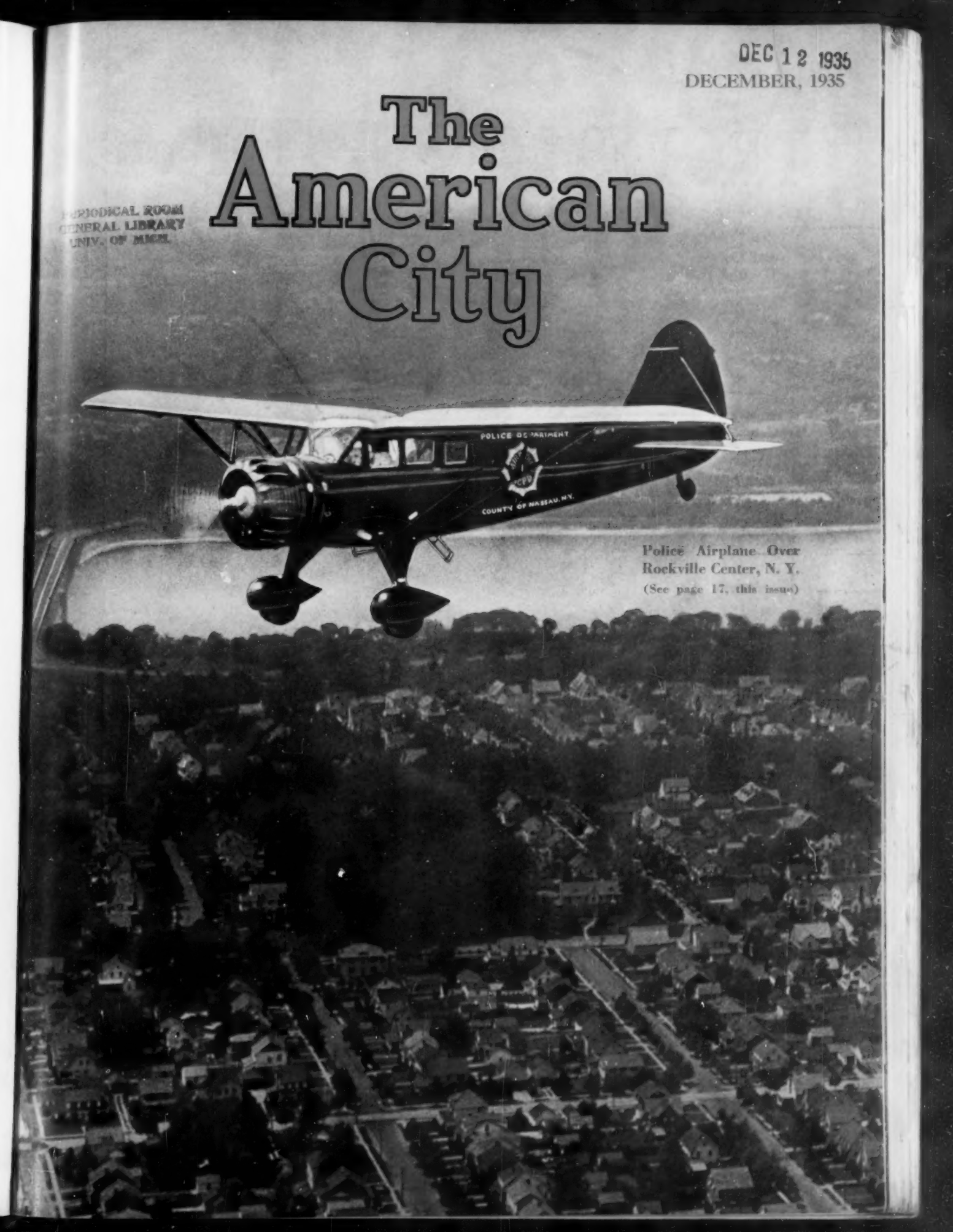

Police Airplane Over Rockville Center, N. Y.

(See page 17, this issue)